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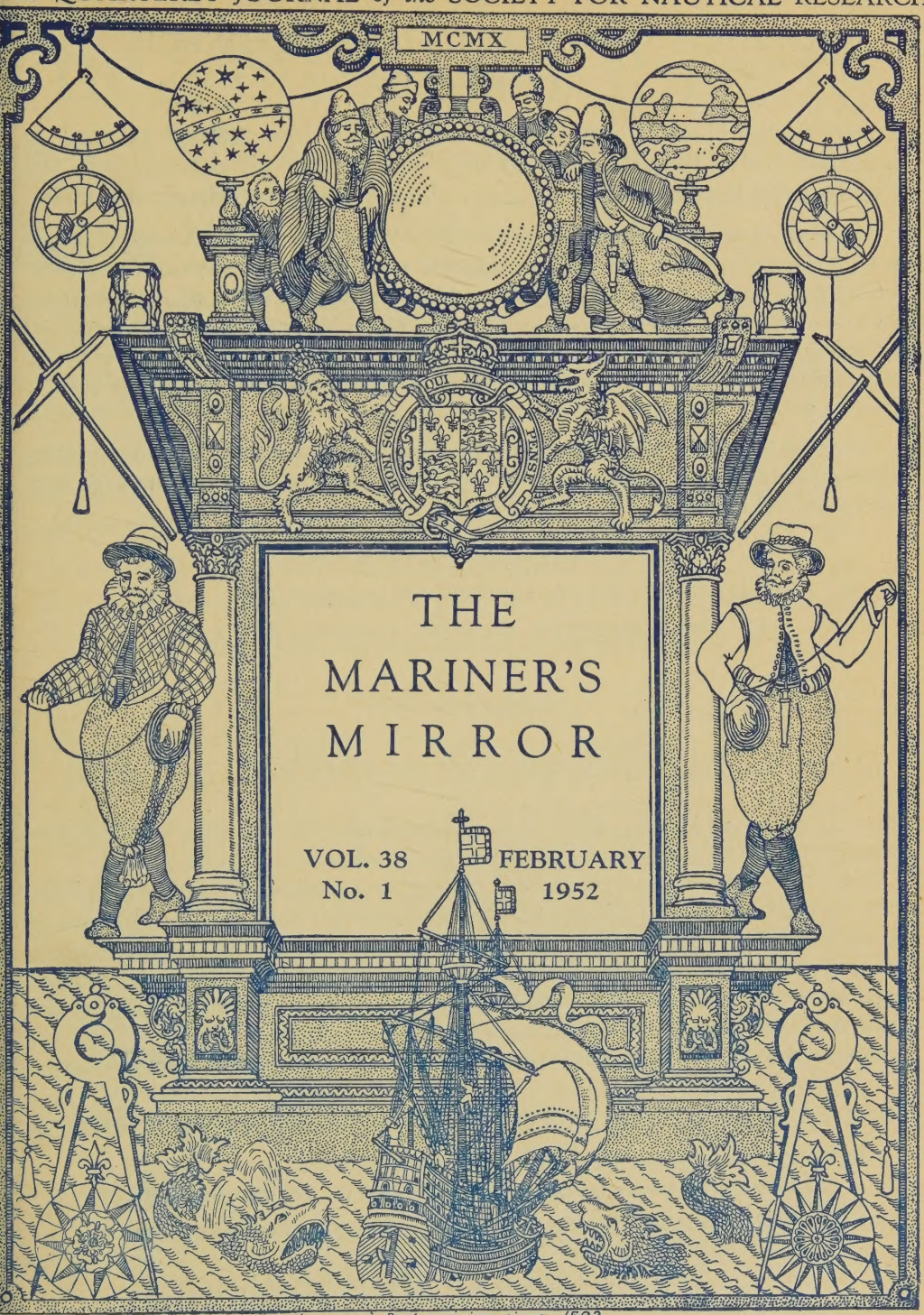

THE MARINER'S MIRROR

VOL. 38 No. 1 FEBRUARY 1952

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The aim of the Society being to arrive at true conclusions through free discussion, it is distinctly to be understood that the Editor is not held responsible for statements made in the *Journal*.

Contributions and correspondence should be addressed to Commander HILARY P. MEAD, R.N., 4 *Eliot Place, London, S.E.* 3. Although not absolutely essential, it would be of great assistance to the Editor and the Printers if articles, notes, queries, answers and reviews of books could be typed, on one side of the paper, preferably quarto, with double-spacing and with a wide margin. Photographs and line drawings to illustrate contributions are welcomed, but on account of the cost and a shortage of 'art' paper the use of plates has to be somewhat restricted.

Names of ships should be underlined to denote *italics*, and not written within inverted commas.

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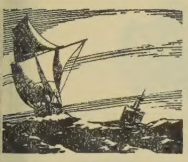

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after the manner of their use in all ages and among all Nations

VOL. 38. NO. 1 FEBRUARY 1952

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IMPORTANT NOTICE FROM THE HON. SECRETARY

ANNUAL GENERAL MEETINGS

Some members who cannot leave their businesses on a Wednesday have asked that the Annual General Meetings should sometimes be held on a Saturday. The Council invite members to write to the Hon. Secretary (*not* to the editor) stating whether or not they are in favour of changing the day of the week from Wednesday to Saturday. The Council note that the meetings on a Wednesday have always been well attended in the past. If the Council learn from correspondents that there is a real demand for a Saturday meeting they will consider making a trial in 1952.

EDITOR'S NOTES

PUBLICATION OF THE *JOURNAL*

Up till the present time the quarterly issues of *The Mariner's Mirror* have been supposed to appear in January, April, July and October, and the editor has attempted to have it on members' breakfast tables by the 15th of the month at the latest. Owing to 'circumstances beyond the editor's control' it has on some occasions not appeared till the very end of the month. In practice, it means that the Printer has such a large number of other journals clamouring for publication at the same time, that he has had to draw up a revised programme so that all journals will have an equal chance of appearing at a scheduled date. We have been asked to co-operate in this programme and have agreed that our *Journal* shall be published in future on the 1st of February, May, August and November (or as near those dates as possible). The Printer has given an assurance that these dates will be strictly adhered to; members are asked, therefore, to accept the trifling retardation in publication, which really amounts to a very few days. It is decided to alter the nominal months of issue to February, May, August and November, accordingly.

THE MARITIME MISCELLANY SERIES

We do not think it necessary to apologize for the current number containing *two* articles from the Maritime Miscellany; they should have appeared in the last two numbers of the *Journal* but were crowded out by more insistent matters. As the type has been standing for some months we have had to publish these two articles at the earliest opportunity.

Maritime Miscellany Series, No. 5

THE TIMBER PROBLEM OF THE ROYAL NAVY, 1652–1862

By Robert G. Albion

PROBABLY not more than one man in a thousand who looked at a British ship-of-the-line in the eighteenth century reflected that her great mainmast had been cut in the forests of New England or Canada; that her topmasts had been grown in the Ukraine; or that the lesser spars came from the slopes of some Norwegian mountain. Nor would the observer probably know that part of the planking of her yellow sides had floated down the Vistula to Danzig, while the curved frame timbers which gave the shape to her bulging hull had come from tough, crooked hedgerow oaks in Sussex. At the best, the casual observer might cherish some vague thoughts concerning 'hearts of oak'.

The supply of the various kinds of timber required was a source of real anxiety to the Royal Navy throughout the two centuries from the Dutch Wars to the end of the era of wooden fighting ships. Nature, rather than the Admiralty, was responsible for half of the timber problem. Great Britain lacked the long cold winters and the short hot summers essential to the growing of good mast timber, and so the Navy was forced from the outset to look for such wood beyond the seas. The shortage of timber for hulls, however, was less excusable. The same climate which prevented the growth of potential masts produced oak which was quite ideal in the eyes of the shipwright. England's original ample heritage of oak, however, was wasted and wise laws, which could easily have ensured an adequate naval supply, were allowed to fall into neglect. In consequence, the last century of 'wooden walls' saw the Navy dependent upon a precarious hand-to-mouth supply of native oak, which had finally to be supplemented with foreign timber. The most far-reaching effects of the mast situation were felt during the American Revolution, but a lack of oak seriously hampered the Navy during the struggle against Napoleon.

The supply of naval timber, being a department of shipbuilding, came under the immediate supervision of the Commissioners of the Navy, better known as the Navy Board. Composed chiefly of retired naval officers and dockyard officials, this department of state possessed more conservative common sense than energy or vision. Now and then, an unusually active Controller might secure excellent results; but too often the Board reflected

he prevalent official inertia of the epoch. The most appropriate inscription or its quarters would have been those remorseful words of Ovid: 'I see the ıetter way and approve of it; yet I follow the worse.' Its policies and ıractices were subject to revision by the Admiralty and its work was often ıampered by the low state of naval credit which was not put upon a firm oundation until the days of the Younger Pitt. Most of the naval construc- ion and all of the repairs were carried on in the Royal dockyards. Chatham nd Sheerness were the active centres during the Dutch Wars; after that he primacy passed to the south-coast yards of Portsmouth and Plymouth vhich handled most of the repairs during the second 'Hundred Years War' vith France. In times of emergency, ships might be built on contract in ›rivate yards; but England generally, and quite wisely, did not follow the ›panish practice of building ships in the colonies where timber was ›lentiful.

The mast problem was the first to arise and the first to be solved. It was :onditioned by the three factors of texture, size and availability. A mast ıeeded to have not only strength but also a supple resilience. This depended argely upon the presence of the gummy resin which in conifers is the :ounterpart of the sap in deciduous trees. In oak, durability depended argely upon a thorough drying out of the sap previous to construction; n masts, usefulness depended upon the continued presence of the resin. n the dockyards, oak was exposed to the sun and air to remove the sap, vhile masts were kept under water in 'ponds' for exactly the opposite ›urpose. Masts, requiring the retention of their springiness, usually had :o be replaced every ten years; otherwise they might be cracked or sprung n a gale. The resinous content was determined chiefly by climate. Thus the Scotch pine (or fir) was of too coarse a texture to have the strength and ·esilience essential in masts, while the same *Pinus silvestris* from the Baltic ·egion was for this purpose ideal.

Table 1

	1st-rate, 120 guns		3rd-rate, 74 guns		Frigate, 28 guns	
	Diameter (in.)	Length (yd.)	Diameter (in.)	Length (yd.)	Diameter (in.)	Length (yd.)
Mainmast	40	40	36	36	20	24
Bowsprit	37	25	34	22	21	14
Foremast	37	37	31	33	19	22
Main-yard	25	35	23	33	14	21
Mizzenmast	24	27	22	25	16	18
Maintopmast	21	23	19	22	13	14
Maintopsail-yard	15	25	14	23	6	9
Jib-boom	15	17	14	16	9	11
Maintopgallantmast	12	11	11	11	7	7

The second factor, size, gave the Baltic fir an important rival in the whi pine (*Pinus strobus*) from the more northern American colonies. The siz problem can best be explained by Table 1, showing typical dimensio for masts and yards in the Napoleonic period. The Baltic forests had bee cut over for so many centuries that sticks more than 27 in. in diamet were scarcely obtainable. The virgin forests in America, on the oth hand, could furnish even the great sticks 40 in. in diameter necessa for the mainmasts of 1st-rates. Such maximum dimensions could b obtained, as the French and Spanish attained them, by piecing togeth 'made masts' from several Baltic firs, but the English preferred th single sticks of the softer and lighter American pine, even if they mig not be as strong. In the largest size, an additional inch of diamet made a tremendous difference in cost. In 1770, a single stick of America pine of 33 in. and 33 yards cost only £56; of 34, £72; of 35, £88; an of 36, £110. For the mainmasts, foremasts and bowsprits of ships-o the-line, the Navy from the days of the First Dutch War (1652–4) to th very end of wooden masts sent to America. The 'middling masts', includi most of the masts for frigates and lesser craft, and the mizzenmasts and th yards of ships-of-the-line were generally brought from Riga and oth Baltic ports. The lighter spars came from Norway, where the spruc although, as it grew larger, it gradually developed a coarseness similar t Scotch pine, had an excellent toughness when young.

The third factor, availability, carried the mast problem beyond the sphe of naval architecture into matters of commercial, colonial and foreign policy where it produced interesting results. It was natural that the Navy shoul look first to the Baltic for its foreign timber. Wood was the principa commodity which that region could offer to the outside world, and th trade which continued recently in matches and pulp had its origin in th medieval days of the Hansa. A well-regulated timber trade developed earl at the various Baltic ports. The western Baltic region, through Stettin specialized in oak; the central ports of the southern shore, particularl Danzig and Riga, furnished both fir and oak; while St Petersburg, Narv and the northern Baltic shore, as well as Gothenburg and the Norwegia ports outside the Baltic proper were largely limited to fir. In the hinterlan behind those ports, the availability of potential mast trees was limited t a belt about thirty or forty miles on either side of the tributary rivers; sinc beyond that distance the difficulties of land haulage made the cost pro hibitive. A tree which could be purchased for five shillings on the stum in Poland was worth twenty-five at Danzig and cost the Navy, whe delivered at the dockyard, five guineas. The wood was carefully graded an inspected at the ports, so that foreign customers had simply to order

specified type. They were then relatively sure of the quality which they would receive, and were relieved of all further difficulty, provided that their credit was good and the sea-lanes were clear. This made the Baltic in the eyes of easy-going administrators more desirable than all other foreign regions, whatever their possibilities.

The simplicity and reliability of this well-organized Baltic trade was offset by two important considerations. In the first place, it ran directly counter to the mercantilist theories which flourished so vigorously in seventeenth-century England. Childs, Man, Brewster and other economic writers kept pointing out that the Baltic afforded a glaring example of an unfavourable balance of trade. The Germans, Swedes, Poles and Russians would not take enough English woollens and cutlery to pay for the timber, so that the balance had to be met in cash. This itself was enough to encourage the development of a supply of timber under the English flag.

The Navy itself might have discounted the logic of the commercial theorists, had there not been a more cogent reason to recommend a colonial source of supply. The Navy was dependent upon the Baltic not only for masts, but also for tar, pitch and other 'naval stores'. This supply was very much at the mercy of foreign powers. Hostile edicts might prevent the loading of cargoes in the Baltic ports. What was more serious, hostile cruisers might intercept cargoes in the Kattegat or Skagger-Rak; for all the Baltic shipping had to pass through the bottle-neck of the Sound. This was an extremely grave menace. If England should lose command of the seas after a serious naval reverse, the enemy might cut off the materials essential for giving ships the wherewithal to recover the control they had lost.

Incidentally, this situation made free English access to the Baltic an important part of the nation's policy, and on at least a dozen occasions naval expeditions were sent to protect that vital source of naval supply. The first expedition sailed two months after the death of Cromwell and a few months later Parliament thrashed out the question; one speaker declaring: 'Never let us sound into the justice of the quarrel, but find a necessity to provide a good navy.' During the Great Northern War between Charles XII and Peter the Great, England several times sent squadrons to prevent the Baltic from becoming either a Swedish or a Russian 'lake'. The successful attacks on neutral Copenhagen in 1801 and 1807 were part of this same policy; and they enabled Saumarez to maintain a strong naval force in the Baltic even during the years when Napoleon was shutting most of the Baltic ports to British trade.

The corollary of this defensive policy was an equally persistent aggressive effort to cut off Baltic naval materials from England's maritime rivals. Neither Holland, France nor Spain grew any trees suitable for masts. In

consequence they shared England's dependence on the Baltic. It was natural that England should utilize her superior naval strength to cripple her rivals. Even in the days of the Armada, Burghley was ordering the seizure of ships carrying masts and naval stores to the Spaniards, and this policy continued to the end of the Napoleonic Wars. It was complicated by considerations of neutrality and contraband. In most of the wars, it would have been suicidal for a vessel flying the French or Spanish flag to carry masts to Brest or Cadiz. The result was that neutral shipping, legitimate or illegitimate, was utilized for the purpose. Since logs and planks might be used for domestic as well as naval architecture, timber was a more questionable type of contraband than gunpowder, though less innocent than grain. This did not deter the English from seizures. British agents in the Baltic ports sent information of shipments for France and Spain; British frigates, forewarned, disregarded the protests of the neutral skippers and sent their mast cargoes into port as prizes; while Stowell, Marriott and other Admiralty judges enriched the development of international law with decisions in which they upheld England's right to seize naval materials. The Baltic nations did not accept this interference meekly. The British were not only scaring away valuable customers, but were injuring national pride as well by searching as by seizing Russian, Prussian, Danish and Swedish ships.

The dependence on imported naval materials was especially important in provoking the Armed Neutrality of 1780 and its revival in 1800. Altogether, this seizure policy resulted in dozens of contraband clauses in old treaties and hundreds of rotten masts in the fleets of France and Spain.

The forests of America from an early date could have relieved England of her dependence upon the Baltic for masts. The possibilities of an overseas mast supply were recognized by the earliest explorers and the Cantino map of 1502 says, referring to Newfoundland: 'Here is much mast timber.' The tracts promoting colonization in Virginia pointed out that it might supplant the Baltic as a source of naval materials; and in 1609, two years after Jamestown was founded, the ship *Ann* carried 'fower score' Virginia masts to England. John Smith's colonists, however, uttered vigorous curses when wood-chopping blistered their hands; and they were soon to find tobacco-growing a more congenial occupation.

In New England, it was quite different. There was little to offer in trade except timber and fish. A broad belt of white pine stretched across the northern part of the continent, reaching the sea in Canada and Maine; its southern limit being the little strip of New Hampshire sea-coast. The first American saw-mill was apparently set up in 1623; and in 1634, a cargo of New England masts reached Deptford, where their unusual size attracted much attention. When, at the start of the First Dutch War, the enemy

lmost cut off supplies from the Baltic, the Navy turned to New England for ts masts. From 1652 to 1775, practically all the great masts for the Royal Navy were brought either from Portsmouth, New Hampshire, or from Falmouth (now Portland), fifty miles up the coast in Maine.

The Restoration economists, with their ideal of a self-sufficient empire, egarded New England as the 'most prejudicial' of the colonial regions. The West Indies raised sugar; the Carolinas grew rice and indigo; Virginia nd Maryland contributed tobacco; and the Middle Colonies, New York, New Jersey and Pennsylvania, supplied 'corn and cattle' to the West Indies. New England, on the other hand, was competing with the mother country n her own important activities of fishing and shipping. An appropriate niche in the imperial system was found for New England. By furnishing ar, pitch, turpentine, hemp and oak in addition to masts, the Yankees night relieve England of her precarious dependence on the Baltic with its nfavourable balance of trade. A series of acts of Parliament between 1705 nd 1729 (3 & 4 Anne, c. 10; 9 Anne, c. 17; 8 Geo. I, c. 12; 2 Geo. II, . 35) aimed at the encouragement of a colonial supply of naval materials, offering liberal bounties for naval stores and masts. The Yankees, however, howed no interest in the production of naval stores, in spite of the tireless ctivities of the agents sent over to instruct and encourage them. The outhernmost colonies later developed the naval stores trade which is still mportant in Georgia to-day; but, though the Navy had to pay bounties o the amount of £1,471,719 between 1706 and 1776, the Navy Board ejected the American tar as of 'too hot a nature' just as it rejected the oak imber and warships from New England. The naval authorities, as a matter f fact, never shared the enthusiasm of the mercantilists for the American upply; it was easier to send to the well-organized Baltic market. New England's contribution consisted solely of the great masts which it furnished ot only to England; but also, in defiance of the laws, to the French and Spaniards as well.

Along with the bounties, Parliament tried to protect the supply of otential masts in New England. All pines over 24 in. in diameter were to e reserved for naval purposes. A Surveyor General of His Majesty's Woods in America was appointed; charged, among other things, with utting the Broad Arrow upon all such trees. These laws, however, were iolated from the very outset. The colonists found it more profitable to cut he large sticks into deals or boards in their little sawmills and ship them to he West Indies. They salved their consciences with the doctrine that the Broad Arrow reservations were infringements upon private property. All lasses of colonial society connived at the violation of the laws. The rough umbermen in the frontier forests of Maine and New Hampshire did not

hesitate to scuttle the boat of a Surveyor General or to throw his deputie into a pond. The merchants, in league with the customs officials, disregarde the export regulations. The courts upheld the lumbermen against th Surveyor General and welcomed trespass suits against the mast contractor The colonial legislatures voiced open disapproval of the laws. Even th Surveyors General were not always above suspicion. From 1743 to 176 this office was held by Benning Wentworth, along with the governorship New Hampshire. It happened that his brother was probably the leadi timber dealer in America and that the family fortune was based upon th sale of pine. It is not, therefore, surprising that Benning was not ove zealous. He was succeeded as Surveyor General by his nephew John (late Sir John) Wentworth, son of the great timber merchant. John was mo conscientious and energetic than his uncle; but, with foresight, recommende that specific tracts be set aside for mast pines instead of the old blank regulations so difficult to enforce.

The violation of the laws gradually exhausted the old sources of supp and it was necessary to push further and further eastward into Maine. I spite of these difficulties, the supply of great masts from Portsmouth an Falmouth to old Portsmouth and Plymouth went on uninterruptedly until th outbreak of the American Revolution. But as soon as the news of Lexingto and Concord reached the ports in April 1775, the colonists forcibly put an en to the mast supply which had lasted 123 years, and Falmouth was burned i reprisal. Indirectly, those men of Portsmouth and Falmouth played a important and hitherto overlooked part in securing American Independence The British dockyards at the time had the usual three years' reserve on hand comprising some 400 sticks of the sizes ordinarily obtainable only from America. The abrupt termination of the American supply after the battl of Bunker Hill gave the clearest possible signal to the British Navy Offic that they must at once look elsewhere for an alternative supply. Even i there was no noticeable shortage at the moment, masts (once they wer taken into service) had a life of at most twelve years; after that their resi dried up and deprived them of the necessary strength and resilience. More over, the only known alternative to the American big stick, viz. the 'mad mast', was in Great Britain a lost art. This art did not lie in the actual con struction of the masts: indeed, it was comparatively simple to pin the part together either in quarters or around a central spindle. But to proportio the weight and strength of the masts to the sailing requirements of each siz of ship involved intricate mathematical calculation together with correctio by trial and error. A slight mistake might diminish a vessel's speed per ceptibly; and, if the sticks were either too heavy or too light, they wer liable to be broken in a strong wind.

The delay of the British government in facing the problem must doubtless be attributed to their unwillingness to believe that trans-Atlantic disturbances would lead to a European war. The government pursued a hand to mouth policy, because (from 1775 to 1778) there was only a normal demand for naval material, and the role of the Navy was no more than vexatious police duty along the coasts of the revolted colonies, enlivened by occasional encounters with the diminutive American fleet and the more active privateers. The Navy had in consequence very few ships-of-the-line at sea on any station. Most of England's big ships were laid up in ordinary with their wooden hulls and lower-masts disintegrating. Men like Charles Middleton were alarmed at the prospect and foretold what would happen. 'Although His Majesty's magazines are at present well supplied with masts, there are but few large masts due upon contract, and the present contractor apprehended difficulty in procuring further supplies.' Yet it was not until the end of 1777 that a mission was sent to the Baltic to see what could be effected there; and it was not until 1778 that any effort was made to revive the art of constructing 'made masts'.

Throughout the remainder of the war British fleets were inevitably sent to sea with lower-masts of an age which jeopardized the very life of a ship, and would have jeopardized it even if the French had not based their tactics on mast-smashing principles. When English ships were compelled to return to harbour, the shortage of supplies led the distracted dockyard officers to resort to every known device to prolong the service of worn-out masts and spars; and, in the meantime, the big sticks in America were lavished upon the fleets of France which could repair themselves luxuriously.

A British naval officer, at the close of the Revolution, was attempting to explain away the failures of the war. 'Indeed', he declared, 'it appeared as if the elements had joined our foes, for storms and hurricanes assisted them to destroy our navy, which by their own strength they were unable to shake.' The storms and hurricanes, however, which shattered the masts of King George's ships blew also upon the fleets of Louis XVI with no particularly damaging effect. The results of the mast shortage were apparent in the very first squadron to sail for America after the French declaration of war. Thirteen ships-of-the-line were slowly fitted out at Portsmouth and, on 9 June 1778, under 'Foul Weather Jack', the poet Byron's grandfather, were sent to intercept D'Estaing. Many of their dried-up masts should have been replaced; but there was no reserve for the purpose. When they had proceeded a third of the way across, the squadron encountered a gale which, incidentally, did little harm to D'Estaing's ships. The ships of Byron's command, however, nearly all suffered a loss of masts and scattered in every direction, only one reaching New York ahead of the French.

Captain Evans of the *Invincible*, 74, gave a description of the effect of the gales on his masts, which may be taken as typical. He had parted company with the others in the July storm, his bowsprit being badly sprung in three places. On 13 August, with the wind blowing hard, 'the mainmast was sprung close to the gundeck, so much that it was expected to go with every roll. We cut it away on the quarter-deck to prevent the upper-deck from being torn up. (No sooner was this done) than the foremast went in three places, all of which fell on the forecastle and wounded several men but only one killed. The bowsprit being sprung some time before and now so bad, we had to cut part of that away.'

The mast shortage continued to haunt the Navy throughout the war. On this point there are no two views among contemporary sea-officers. Rodney and Palliser, favourite admirals of Sandwich, denounced the deficiency as openly as Howe and Keppel, Sandwich's opponents. In fact, all the correspondence of naval leaders, able or slow-witted, Whig or Tory, points to the fact that the empty mast-ponds had a most unfortunate influence on the efficiency of ships.

In home waters the situation was to some extent rectified when the largest available Baltic masts began to be regularly shipped from Riga. But, even so, there was no profusion, no surplus. The issues of the war were being decided on the other side of the Atlantic; and at that distance there was no means of replenishment. Graves's fleet, badly mauled at the battle of the Chesapeake, 5 September 1781, retired to New York where, as he reported, there 'was scarcely a spar in the yard'. Repairs consequently dragged on with painful slowness and it was not until 19 October, the day on which Cornwallis surrendered, that with Clinton's troops at last on board, Graves finally set sail. Things were every bit as bad in the West Indies. On his arrival there, Sir Samuel Hood wrote to Charles Middleton that there was not 'a single lower mast for a seventy-four gun ship in this country'. Two years later he was still vociferating the same need. Antigua, St Lucia and Jamaica were all in the same evil plight. Hence the tragic aftermath to the successful operations in April 1782. The little dockyard at Jamaica was unable to repair the damages sustained in Rodney's victory of The Saints. The Admiral dispatched nine injured ships-of-the-line, including some prizes captured from the French, with a convoy for England; but the autumn gales caught them off the Grand Banks, and only one of the nine reached home. Four foundered with most of their crews, the flagship was abandoned and blown up, and 3500 lives were lost.

Those American colonies which remained loyal to Great Britain finally relieved her of further anxiety in relation to the supply of masts. Indeed, if the Navy could have turned to the forests of New Brunswick as soon as

war broke out in 1775, most of the trouble which followed would have been averted. But with a tardiness characteristic of the Sandwich administration, it was not until the winter of 1779 that the first New Brunswick masts were cut for the dockyard at Halifax and not until 1782 that there was a surplus for England. From that time onwards, New Brunswick took over the old function of Maine and New Hampshire until the close of the century, when it was in turn replaced by Quebec. The Broad Arrow administration still under the direction of Sir John Wentworth, was transplanted to these new regions; and, after initial difficulties had been overcome, was finally established on a satisfactory basis. Here an interesting anachronism may be noted. For the title-deeds, by which western Canadian prairie-lands were conveyed to Boer War veterans at the beginning of the twentieth century, still reserved for the Navy all pines suitable for conversion into masts. By that time of course steel had supplanted pine; but as long as the Navy needed great sticks, British North America continued to furnish them. How different the story of the British Empire, if this supply had been exploited during those revolutionary years, when the loss of the North American pines contributed so materially to the loss of the colonies which had hitherto provided them!

When we turn to timber for hulls, we encounter a problem which should never have arisen. England ought to have been able to furnish plenty of oak of the finest quality from her own woodlands.

The prime requisites in good hull-timber were strength and durability. Durability depended largely upon resistance to the insidious fungus known as dry rot. This was a curse from which the Navy suffered during the whole period of wooden ships. It was produced in part by the absence of ventilation and in part by inadequate seasoning; but some types of timber seem to have been more susceptible to it than others.

Questions of shape and size also complicated the problem of timber for the hull. It was not difficult to secure trees suitable for planking; the trouble arose over the so-called 'great' and 'compass' timber. Maximum size always presented the self-same problems which we have noticed in relation to masts; the stern post, for instance, like the mainmast, was most difficult to provide for. In a 1st-rate a single oak some 40 ft. long and 28 in. thick was needed. Requirements of this kind served for a long time as a limitation upon the extreme size of ships. The curved or compass timbers were also a source of difficulty, since trees of abnormal shape were necessary, until bending under steam pressure was perfected to supplement the natural product. Curved futtocks and top pieces were needed in large numbers for the old 'tumble home' of the bulging sides. But scarcest of all were the wing-transom knees with their two long arms almost at right-angles. The

relative scarcity may be judged from the prices asked during the shortage of 1804 when ordinary oak averaged about £7 a load.[1] Fourth futtocks cost £12. 7*s*. a load; stern-posts, rudder pieces and wing transoms, £12. 8*s*.; common knees, £13. 2*s*.; and wing transom knees (when procurable), £15. 8*s*. Hedgerow oaks frequently assumed the necessary eccentric forms; and nature was sometimes assisted by pinning down or binding together the young trees in their formative stages of growth.

The range of trees utilized for hull timber was surprisingly narrow. In contrast to the present Lloyd's list of some seventy-five different trees, the eighteenth century ordinarily used only four. Elm would serve below the water-line for keels and 'garbord strakes', while beech might sometimes be substituted for the same purpose. Whole vessels could be built quickly in an emergency entirely of fir, but it was not durable and splintered too easily in action. Oak remained as the ship-timber *par excellence*, being, as Evelyn wrote, 'tough, bending well, strong and not too heavy, nor easily admitting water'.

Of the various oaks, the *Quercus robur* was generally employed. It grew all over Europe from Norway to Sicily and from Ireland to the Urals; but it varied widely in quality, depending upon climate and soil. The straight, brown wood of the Baltic oak was frequently used for planking; but that region produced little compass timber, while the Italian oak, so tough that it often turned the edges of the tools, was not employed by the British until the nineteenth century. The white oak (*Q. alba*) of America was considered too susceptible to dry rot; and the British completely neglected the possibilities of the invaluable live oak (*Q. virens* or *Virginiana*) which grew along the coast of the southern American colonies. In the eyes of the British shipwright, the English *Quercus robur*, with its rugged individuality, was the best ship-timber in the world. The favouritism did not stop there, for naval contracts frequently specified 'good, sound Sussex oak'. The oaks grown in the clayey soil of that particular county had in the opinion of the English shipbuilders no equal.

The average 'seventy-four' of the eighteenth century, varying between 1600 and 1900 tons, consumed about 3000 loads of timber, which was equivalent to stripping sixty acres of oaks a century old. The increasing scarcity of English oak is reflected in the rising cost per ton of a 3rd-rate: 1600, £5. 10*s*.; 1675, £9; 1693, £11. 5*s*.; 1719–41, £12 to £13; Seven Years War, £16 to £17; 1775–1802, £20 to £21; 1803, £34. 10*s*.; and 1805, during the great shortage, £36. The cost of a 3rd-rate in the Napoleonic period was estimated roughly at £1000 per gun, a seventy-four

1 The load, of 50 cu.ft., was the standard unit of timber measurement. It was the size of an average oak, weighing slightly more than a ton and making nearly a ton of average shipping.

ithout ordnance costing about £70,000. Of that amount, about £35,000 ent for timber, £3500 for masts and yards, £10,000 for rigging and stores, id the remainder for other materials and labour. The cost of construction as usually higher in the royal dockyards than in the private yards which uilt on contract. The King's yards usually took at least three years to build 3rd-rate; the private yards could do it in two.

The initial cost was only part of the story. Repairs ate deeply into oak id money. In ironical contrast to the present situation, where tough steel iips become obsolete almost before their maiden voyage, the fighting ships f that time remained unchanged for a century. On the other hand, iey seldom went more than twenty years without requiring great repairs most equal to their original cost. The extremes in durability were to be ound in the *Royal William* (90), which was built in 1719, participated in ie relief of Gibraltar in 1780, and without expensive repairs lasted nearly century; and in the *Queen Charlotte* (110), which was almost completely otted within two years after her launch in 1810, before ever putting to sea. Nelson's *Victory* cost only £63,174 when launched in 1765. By the time ie fought at Trafalgar, repairs had swelled the total to £251,981; and by 815, the cost had risen to £371,922.

If we turn to the English woodlands, we can find an explanation for rising osts and diminishing durability. England originally had a superabundant ipply of oak; and in the earliest days there was every reason why the forests iould be cleared in the interests of agriculture. There were no serious itimations of shortage to be observed until after the dissolution of the ionasteries by Henry VIII. But then the old owners, or the new, cut down ieir oaks to realize immediate profits. What is more: the Navy had many vals for the available supply of oak. Domestic architecture absorbed considerable amount; the coopers demanded the best quality for their asks; and merchant shipbuilding naturally consumed a large quantity, the iost serious rival being the East India Company which competed for the irgest timbers. But the greatest 'devourer of oaks' in the country was ie iron industry, which flourished in the choicest oak regions of southern England; much potential ship timber being converted into charcoal for melting. Under Elizabeth, measures were taken to lessen this drain upon ie oak supply; and the inventions of the Darbys and their successors ventually shifted the iron industry to the midlands and north, where coal eplaced the oaks. The confiscations of the Civil War and Interregnum, llowed by the heavy demands for rebuilding after the Fire of London, ave the *coup de grâce* to England's old forest plenty.

The oak shortage made its effects felt in the Navy just a quarter of a entury after the mast situation became acute. In 1677, Parliament voted

£600,000 for the building of thirty new ships, to offset Colbert's prepara tions at Brest and Toulon. It would have been more sensible to repair th old ships and build a few new ones each year; but Pepys and his associate had to use the funds for the specific purposes of the appropriation. Phinea Pett and Anthony Deane, both able shipwrights, scoured the country fo available oak, but the larger sizes were almost unobtainable. 'God knows wrote Pepys, 'where materials can be had for so many first and second rate However we shall think fit to propose the building of them.' The shi were finally constructed; but, the timber not having been given adequat time for seasoning, the whole armament within a few years was pulverize by dry rot. England had wasted its available ship timber and had nothin to show for it. And it would take a hundred years to grow more oaks.

Restoration England met the situation in an intelligent manner. If it plans had been carried out in the eighteenth century, the difficulties of th Napoleonic period need not have arisen. The obvious source of naval timbe was in the royal forests. That term, of course, did not necessarily imp woodlands; for it was written of Exmoor Forest, 'There were noe woo in the said Forest except one oak called Kite Oak'. Many of the roya forests had been alienated during the century, but there remained thre timber tracts of great potential value, the Forest of Dean in the south western corner of Gloucestershire and the New Forest and Alice Holt i Hampshire. A Parliamentary Act of 1668 (19 & 20 Chas. II, c. 8) provide that 11,000 acres of waste land in Dean were to be enclosed at once an planted with oak. In 1698, a similar act (9 & 10 William III, c. 36 stipulated that 2000 acres of oak were to be planted in the New Forest, wit an additional 200 acres a year for twenty years. This policy, if it had bee carried out, would have resulted in security and economy. But by 1725 th plantation policy had fallen into complete neglect, not to be revived unti 1808. In fifty-seven years during the eighteenth century, the royal forest provided only the equivalent of four years' naval supply.

That threw the burden upon the precarious supply derivable from th groves of private individuals. In 1664, John Evelyn, the diarist, publishe his *Sylva*, really a great planting tract addressed to the English lande gentry. Shortly after the Napoleonic Wars, the elder Disraeli wrote 'Inquire at the Admiralty how the fleets of Nelson have been constructed and they can tell you that it was with the oaks which the genius of Evely planted.' Whether or not the *Sylva* actually caused the planting of 'million of timber trees', it is certain that the Restoration private plantings mature in time to carry the Navy through the wars of the later eighteenth century.

A grove of century-old oaks on a private estate represented the Englis spirit of family continuity at its best. It meant that several generations hac

esisted the temptation to fell the trees, which, in those days of entails, was he easiest way to raise money in an emergency. Too many agreed with the Restoration peer, quoted by Pepys, that oaks were 'an excrescence of the earth provided by God for the payment of debts'. There was particular difficulty in securing the extra sizes needed for stern posts, because an oak which could have been sold at a good price when it reached normal size might begin to decay internally before it reached the extra dimensions. Sentiment and proprietary pride also hampered the sale of parkland oaks for practical uses; and many ancestral estates exhibited any number of hollow, staghorned, old 'dotards', more picturesque than useful. In France, Spain and Russia, the governments exercised the right of pre-emption in seizing oaks for their navies. The Tudors and Stuarts had at times secured such trees through purveyance. But the eighteenth-century Parliament, which did not hesitate to commandeer pines in Maine, was very tender of property in the matter of English oaks. Most members of Parliament were landowners and most of them possessed oaks themselves. The wonder is that the Navy was supplied as well as it was under this haphazard dependence into which it was thrown by the failure to utilize the royal forests.

By the second half of the eighteenth century, the Navy was once more beginning to feel the pinch. In 1759, the Royal Society of Arts offered gold and silver prizes which were effective in stimulating the planting of a great number of trees. In 1771, a Parliamentary committee made a thorough investigation of the naval timber supply. Shortly after the American Revolution, an even more exhaustive study was made by the Commissioners of the Land Revenue: their eleventh report, made in 1791, being the most comprehensive survey of the situation. The new profits obtainable after the 'Agricultural Revolution' raised the question of whether lands might not better be turned into cornfields instead of remaining in 'maritime mortmain' and this led to the destruction of many groves.

The English oaks held out long enough to carry the Navy through the eighteenth century, but not a year longer. Long administrative neglect and corruption combined, with actual scarcity of oak, to produce an extremely grave situation by the time war was renewed with Napoleon in 1803. In the Restoration period, the Navy had received its oak as the result of scores of bargains for small lots, made by its purveyors and even by its shipwrights, who would haggle for hours over the proper price for half a hundred trees. Eighteenth-century inertia allowed this function to fall into the hands of private timber merchants, who would contract for the supply of a whole dockyard or even for a whole Navy. This was much easier for the Navy Board, and probably more profitable to its individual members. If they had all been as frank as Pepys, we should probably find that the awarding of

contracts was frequently influenced by circumstances similar to the delicate bribery by Sir William Warren, the great mast contractor. The number of timber merchants constantly narrowed until at the end of the century practically the entire national oak supply was concentrated in the hands of John Larking and William Bowsher, who were thus in a position to dictate terms to the Navy Board. The dockyard officials were supposed to check the quantity and quality of the timber received on contract, but it was revealed that they received more pay from the contractors than from the government.

When Lord St Vincent became First Lord of Admiralty in the Addington ministry in 1801, he determined to eradicate this abuse, and provided new timber inspectors who were to examine rigidly all oak delivered on contract. Larking and Bowsher thereupon withheld all oak from the dockyards and little could be obtained elsewhere. The situation was desperate after the renewal of hostilities in 1803. Ships, badly needed in the blockading squadrons, lay idle for months at the dockyards while shipwrights fought for the possession of every stray green log that found its way into the yard.

This timber situation helps to explain why those storm-wracked squadrons off the enemy ports gradually grew smaller while the enemy forces grew stronger inside. Ships began to weaken under the gruelling strain. They might have been repaired with little trouble at the outset, but there were no reserves with which to replace them. The fleet in the Channel under Cornwallis could slip back to home ports occasionally, but the more distant squadrons slowly disintegrated. Collingwood, off Rochefort, wrote, 'We have been sailing for the last six months with only a copper sheet between us and eternity'; and during his infrequent spells ashore he planted acorns round his estate to provide for a future supply. Nelson wrote from off Toulon in December, 1803:

> My crazy Fleet are getting in a very indifferent state, and others will soon follow. The finest ships in the Service will soon be destroyed. I know well enough that if I was to go into Malta, I should save the Ships during this bad season; but if I am to watch the French I must be at sea, and if at sea, must have bad weather; and if the Ships are not fit to stand bad weather, they are useless. I do not say much; but I do not believe that Lord St Vincent would have kept the sea with such Ships.

The readers of his despatches are familiar with numerous other passages in the same vein.

Cochrane was having similar difficulties off Ferrol. The report of the ship's carpenter of the *Ganges* (74) in his squadron shows what even moderate summer seas could do when a ship began to give way after long lack of repairs. His report, in July 1804, showed that three of her forecastle beams were broken and two knees under the forecastle were sprung. Some

the lower deck planking was quite decayed; one plank forward being so r gone that the magazines and storerooms could not be kept dry in bad eather. All the decks were leaky for want of caulking. The poop deck as 'so thin as not to bear caulking, as appeared by a survey held on it at ortsmouth in September last, when there was no deals to repair it'. The owsprit was sprung and 'the whole of the knees and beams of the lower eck appears to work much'. Two of the lower deck pumps were useless id 'the ship made so much water at times as to gain on the pumps'. et the squadrons managed to maintain their vigil.

Relief finally came after Lord Melville (Henry Dundas) replaced Vincent at the Admiralty upon Pitt's return to power in May 1804. Melville immediately capitulated to the timber magnates, and enough oak as received to patch up thirty-nine ships of the line between Melville's cession and the battle of Trafalgar. This was equivalent to more than third of England's total battle strength. Of the twenty-seven ships of e line under Nelson at Trafalgar, seventeen had been repaired after the rrender to the timber dealers; three of them having been hurriedly fitted it and sent to sea only a month before the battle.

The general situation, of course, changed after Trafalgar. The burden of ercising sea-power was shifted from the ships-of-the-line to the frigates id lesser craft. The timber situation became more acute, for even Larking id Bowsher could not secure enough English oak to meet more than fraction of the Navy's demands. Efforts were made to secure oak from e Continent; but the spread of Napoleon's power checked one attempt ter another in harbours all the way round Europe from the Baltic to the lack Sea. Holland, Holstein, Croatia, Albania and the Crimea were in rn the scenes of abortive efforts; to say nothing of the Baltic, where secret rvice agents reported regularly upon the possibilities of trading at certain orts by means of bribes to the French consuls. There was a certain amount leakage; but in 1807, the oak shipments from Danzig were insufficient plank a frigate. There was a similar situation in the United States, which ohibited trade with England during all but ten months between 1807 id 1815.

Cut off from her usual sources of supply, England engaged in a world-ide search for timber; and her overseas empire saved her in the crisis. dmirals and diplomats in every part of the world were asked to report on timber possibilities. Many of the sources were of little value because the difficulties involved in organizing a timber trade where none had isted before. South African natives were trained to cut stinkwood near ape Town; African teak was brought from Sierra Leone; logs of tough eenheart and morrah were gathered in British Guiana; returning trans-

ports were filled with jarrah from Australia; and cannibals devoured th crew of a ship while she was loading kauri logs in New Zealand. Sever excellent teak ships-of-the-line and frigates were built by a Parsee shipwrigh at Bombay, while teak frames for other vessels were carried back to Englan

The most valuable assistance came from Canada. Several large firm agreed to establish an extensive timber business at Quebec, provided th the government would give them assurances of continuous support. Pr hibitive duties were accordingly laid upon Baltic timber and the ma contracts were shifted from New Brunswick. The white oak, despised i the colonial period, did much to relieve the naval situation. Oak shipmen from British North America jumped from 1089 loads in 1799 to 24,49 in 1811. American pine, utilized to relieve the general timber shortag came in even greater quantities, increasing from 914 loads in 1799 t 151,977 in 1811. The government kept its word with the Quebec timb merchants; and the timber duties remained far into the free trade peri as silent partners of the corn laws. In 1812, the Navy consumed 44,62 loads of English oak and 30,077 of foreign oak, chiefly Canadian.

The hand-to-mouth supply of timber during those years had its effe upon the ships. Dry rot became increasingly prevalent, partly because o the mixture of woods and partly because of the lack of time for seasoning The *Queen Charlotte* was only an extreme case of the decay which w rapidly disintegrating the whole Navy. One official, when asked how lon the ships were lasting, exclaimed, 'There is no duration'. Many frigate were built of fir, proving short-lived and dangerous in action. The shortag also influenced naval architecture, particularly through the lack of compas timber. The 'wall-sided' ship, advocated long before by Gabriel Snodgrass master-builder for the East India Company, gradually replaced the bulgin 'tumble-home' construction. The French use of iron knees was copied until Robert Seppings won knighthood for suggesting in 1812 that lon riders be substituted for knees and that the inner planking or ceiling b eliminated. The experiences of the Napoleonic struggle also broke down th prejudices of the British shipwrights against foreign timbers. English oa lost its old monopoly, and during the last days of the wooden-ship era, tea and Italian oak played a prominent part; to say nothing of the more exoti timber products of a world-wide search.

The timber problem haunted the Navy to the very last days of woode fighting ships. Even in the spring of 1861, after the ironclads *La Gloir* and *Warrior* were at sea, Parliament was so impressed with the need o replenishing the oak supply that it voted the largest appropriation for shi timber in the whole two centuries during which the problem endured. Th Admiralty later took an additional quarter of a million, originally appro

riated for iron plate, to buy still more timber. Palmerston and others still ave voice to their faith in the future of wooden warships. This was the owning act of folly in a long record of foolish actions concerning timber olicy. Before the year covered by that appropriation was ended, the battle Hampton Roads had sounded the death-knell of wooden men-of-war. hough two wooden corvettes were built as late as 1874, the last new ooden sailing ship-of-the-line was the *Defiance*, launched while that igantic timber appropriation was in progress. For a while, timber was sed as a backing for armour plates and masts, and continued, of course, r decks. The sudden ending of the problem is indicated in the decade's lling appropriations for timber, masts and deals: 1861, £949,731 (plus 250,000); 1862, £560,713; 1863, £266,633; 1864, £213,092; 1865, 165,800; 1866, £117,565; 1867, £71,625; 1868, £78,831; 1869, 23,929; 1870, £15,650.

Though 'strategic materials' and 'stock-piling' were not in the ocabularies of Pepys and Middleton, they appreciated the implications those subjects, and their handling of the problem suggests counter-arts in this later more complex age.

There is a close parallel between the old timber problem and the oil oblem of to-day, except that oaks could be grown again in a century hereas oil cannot be replaced. England is situated now in regard to oil she was then in respect to masts; her dependence on an overseas supply volving foreign and colonial policy. The United States, in respect to oil, in a position resembling England's former position in respect of oak. eceiving from nature an apparently inexhaustible supply, she is liable to cur the danger of allowing it to be wasted carelessly, through extra-naval es, to the ultimate detriment of the naval supply. Valuable lessons might e learned from the needless expense and unnecessary risk which England curred through faulty policy in connexion with such vital supplies, but e optimists could point out that in spite of all those shortcomings, that me Royal Navy muddled through its difficulties and won dominion of e seas.

Detailed references and bibliography will be found in the author's *rests and Sea Power: the Timber Problem of the Royal Navy* (Harvard conomic Studies, vol. xxix), Cambridge, Massachusetts, 1926. The search was based primarily upon the hitherto unexploited Navy Board rrespondence in the Public Record Office. Other manuscript sources of ecial value were the Admiralty Digests and Admirals' Despatches in the ublic Record Office; the Abstracts of Progress and digests on naval stores id shipbuilding in the Admiralty Library; and the Pepysian Manuscripts

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Maritime Miscellany Series, No. 6

THE FIGHTING SHIP FROM 1860 TO 1890

By Admiral G. A. Ballard

SOON after the nineteenth century had run half its course, scientific improvements made by leading metallurgists in the production of high-quality malleable iron and steel placed a new and extremely suitable substance at the disposal of naval architects and ordnance designers. It was not that wrought iron was absolutely new to shipbuilding; but the descriptions previously manufactured had been proved by experiment too brittle and impure for war purposes; and the removal of these defects made all the difference. It initiated an era of more radical transformation in the fighting-ship than had ever been known in the long history of fire-arms. The fighting-ship had only recently undergone a change in her method of propulsion. She was now to be changed: first, in the material of her structure, with prodigious effect on her dimensions; secondly, in her armament, with like effect on her powers of attack; and thirdly in her protective arrangements, with like effect again in her ability to withstand attack herself. Practically nothing remained to indicate her inheritance of the general conception of an instrument of sea-force, as it had shaped the design of her predecessors during four centuries of naval architecture.

Yet her functions remained absolutely unaltered; not only in their wider aspect, but in their division into special duties demanding special types. A broad line of demarcation lay across the fighting tonnage of every State with pretensions to sea-power. Above this line stood the ships launched as units of the main battlefleet; below it, those intended for the accessory operations of maritime war. And this applied just as much after the great transformation as before. In the first category the ships were designed to represent individual concentration of force: and until the change they were known as 'ships-of-the-line'. In the second category the ships were designed to facilitate that dispersion of force, which arises from the side issues of oceanic hostilities and in which numerical strength is more necessary than individual: and until the change they were known as 'frigates, corvettes, sloops and gun-vessels'. After the universal change, and after an interval of undecided nomenclature, the first were officially designated 'battleships'; and the second 'cruisers' (of three classes) and 'torpedo craft'.

The original cause of the wholesale application of forged iron to fighting-ship construction must be sought in the experiences of the war against

Russia in the middle 1850's. In the older wars of the Georgian epoch a vessel had to face only the impact of unexplosive solid shot, which rarely did damage enough to sink her. But since then a highly destructive type of missile, originally contrived by the French and known in England as a shell, had been added to naval ammunition; and the results of its first use under war conditions in the anti-Russian conflict proved that the ship-of-the-line had no chance of surviving this novel ordeal.

What then could take her place? A first step towards a solution of the problem was made before the close of the Crimean war. It was fairly evident that, if shells could be made to explode without penetrating, their worst devastation would be averted. To this end, therefore, the French Emperor Napoleon III, an artillery officer by training and predilection, ordered that some specially built pontoon-shaped vessels should be coated in $4\frac{1}{2}$ in. rolled iron, in preparation for an attack which they were to carry out on certain land forts: and this was the earliest application of such material (on a scale measured by the hundreds of tons) as a fixture in the design of any embodiment of waterborne force. Proving very successful, the experiment inevitably pointed to further developments.

In these the French for a third time led the way. Having the usual quantity of timber tonnage on the slipways, they utilized the half-completed hull of a large ship-of-the-line to extend this system of protection, without further delay, to an ocean-going model. The weight of the metal was too great to apply it up to the full height of her double gun-decked side, which in consequence had to be cut down to mount a single tier armament. But the resultant loss in number of guns was met by mounting on the remaining deck only weapons of the very largest calibre. This historic vessel was launched in 1859 as the *Gloire*, the first *armoured* successor to the ship-of-the-line; and as such the first to which the modern designation of 'battle-ship' can now be applied, though at the time she was called, in virtue of her single armament deck, an 'iron-cased frigate'. Her length was 235 ft., her beam 55, and her displacement 5000 tons. She was a twelve-knot steamer on her trials, and carried a barque-rig of medium sail area.

As no ship then afloat could possibly stand up to the *Gloire*, the British public insisted that her match should be provided without loss of time. Thereupon the Admiralty deprived France of the lead by laying the keel of the *Warrior*; a far finer vessel, with the very notable distinction of being not only iron cased (in part) but iron built; thus disregarding for the first time the universal distrust of anything but wood for the main hull of a combatant design. Signs were not wanting that the limit in dimensions possible with timber as a material had been reached; but with good malleable iron as an alternative, the builders were free to go to any size;

and as an immediate result the *Warrior* was half as large again and half as long again as the largest ship-of-the-line, displacing as she did 9200 tons on a length between perpendiculars of 380 ft. and a beam of 58. Though she was only armoured over 220 ft., and in that respect alone inferior to the *Gloire* which carried armour from bow to stern, her iron construction permitted the great safeguard of watertight partitioning, which the oak fabric of the French vessel did not. Horizontal trunk engines, with ten rectangular boilers working at 20 lb. pressure, gave her a trial speed of 14½ knots; the highest till then ever attained by a fighting-ship. With the square-rigged sail area of a ship-of-the-line, and a hoisting propeller, she could travel 13 knots under canvas in a hard breeze, though too heavy for fast movement in light winds.

To the novelty of wrought-iron hull and armour, the *Warrior* added the further novelty of a partly wrought-iron armament. For centuries past all guns had been cast-iron or brass. But just when a limit of safety in cast sizes had been approached, the new quality of forgeable iron was tried for new descriptions of ordnance in some private factories with great success; whereupon a fresh era was opened in that direction, and guns began to grow much faster even than ships. The *Warrior* started with a combination of twenty-six of the old smooth-bore cast muzzle-loaders, weighing 4¾ tons (the largest made), and fifteen of the new wrought-iron rifled Armstrong breech-loaders in two calibres, of which the major weighed 6½ tons. Later these forty-one weapons were changed for thirty-two wrought-iron rifled muzzle-loaders in two sizes, weighing respectively 6½ and 9 tons.

When the *Warrior* was launched in December 1860, the French were engaged in converting all their partly completed large models in the same fashion as the *Gloire*; and the British Admiralty were now convinced that armour had become indispensable to battleship standards. Although, therefore, three iron hulled and armoured vessels had been laid down in England besides the *Warrior*, it was decided to follow the French example by converting into 'ironclads' eight wooden ships-of-the-line of the discarded type, which were on the stocks in various stages of building. Seven were completed as broadside armed and armoured battleships; while the eighth was transformed into a coast-defence turret-ship, thereby initiating a totally new system of carrying guns afloat, never previously tried except in a raft. At the same time, two additional timber hulled and armoured broadside vessels of heavy tonnage were specially begun, in order to use up the surplus stock of oak left in the Royal Dockyards by the change to iron structure.

As that change was not extended downwards to the classes below battleship level till some years later, no description need be given here of

the frigates, corvettes, sloops, and gun-boats of 1860, which all remained in design as in the immediately preceding period. They were all wooden-built masted steamers, carrying smooth-bore armaments. About one-twentieth of the number were paddle driven, but all the rest were driven by screw.

By 1870, the middle year of Victoria's reign, the first decade of sixty years' intensive advance in naval architecture and ordnance had passed. The British battlefleet now consisted of twenty-seven armoured vessels of over 6000 tons, eighteen of which were iron-built. The other nine were timber-hulled ships already mentioned. All were now armed throughout with rifled muzzle-loaders; of which five new calibres had been produced since 1860, each larger than the last. Ten of the iron vessels and eight of the wood, carried, roughly according to size, from sixteen to thirty-two guns of $6\frac{1}{2}$, 9 and $12\frac{1}{2}$ tons in varying numerical combinations, disposed along the maindeck broadsides, as in the *Warrior*. The armour of this group was from $4\frac{1}{2}$ to 6 in.; and the two largest of its ships were the sisters *Minotaur* and *Agincourt* of 10,600 tons, with a length of 400 ft. and a beam of $59\frac{1}{2}$.

Six iron 'central-battery' ships and one wooden belonged to a type, introduced in 1865 as the first modification of the long broadside, and necessitated by the increase in the size of guns, with its proportional reduction in numbers on board. These 'central-battery' ships carried eight or ten guns of 9, $12\frac{1}{2}$ or 18 tons in an armoured central battery with lighter chase guns at bow and stern. In four of these ships the battery was double-decked, carrying four guns at the higher level and six below. Central-battery ships had thicker armour than the long broadside type but it covered a smaller area. It varied from 5 to 9 in. The largest ship in this category afloat in 1870 was the *Hercules* of 8700 tons, with a length of 325 ft. and a beam of 59. She mounted eight 18-ton weapons in her central battery, with one of $12\frac{1}{2}$ tons at bow and stern on the same deck and four of $6\frac{1}{2}$ tons on the upper deck.

Last, but most important of all, were the turret-ships *Monarch* and *Captain*, the first armoured vessels (distinct from coast-defence units) ever to carry their guns on the external centre-line plan; which subsequently became indispensable to battleship armaments in all countries. Both carried two turrets with a pair of 25-ton guns in each, from which the great increase in size of ordnance within ten years can be recognized. But the similarity of the two went no further. The *Captain* had an extremely low freeboard and capsized under the pressure of her sails after only a few months' service. The *Monarch* mounted her guns higher above the water than any ship afloat and had a very long career.

LA GLOIRE. FRENCH BROADSIDE SHIP

(*From the coloured lithograph by Louis Le Breton in the Macpherson Collection*)

H.M.S. *HERCULES*. BRITISH CENTRAL-BATTERY SHIP

(*Coloured lithograph. Griffin after Mitchell in the Macpherson Collection*)

H.M.S. *TRAFALGAR*. BRITISH TURRET SHIP

DANDOLO. ITALIAN TURRET SHIP

H.M.S. *IRIS*. DESPATCH VESSEL

(*Coloured lithograph. Griffin after Mitchell in the Macpherson Collection*)

U.S.S. *CHICAGO*. UNITED STATES CRUISER

H.M.S. *TENEDOS*. TYPICAL CORVETTE OF 1875

(*From the water colour by W. F. Mitchell in the Macpherson Collection*)

H.M.S. *MAGPIE*. TYPICAL GUN VESSEL OF 1875

(*Photo. Dr Oscar Parkes*)

Every ship in the British battlefleet of 1870 was horizontally engined and rectangular boilered; and the five newest had twin screws, which were just coming into use, though compound machinery was not yet adopted. Nine of them carried hoisting propellers, and all were square-rigged with a large area of canvas, three having five masts. Fourteen and a half knots was the maximum trial speed of the fastest, and 1800 miles about the maximum of coal endurance at economical speeds.

For a brief period in the middle 1860's a policy of building coast-defence craft prevailed with the British Government. This was based on an important appreciation of the strategic requirements of the Empire arising from the course of events in the war with Russia. Seven vessels of that description, all armoured, had been built in England between 1860 and 1870, including one of the wooden converted ships-of-the-line. The other six were iron hulled. Four were turret ships, and the remaining three armed with pivot guns. The displacements ran from 1260 up to 5000 tons. But in countries with smaller navies the mobile local protection afforded by coast-defence craft had justification, and in some of these they were very much in favour. For example, the armoured branches of the United States and Russian navies consisted of nothing else; while in Prussia they outnumbered the blue-water types, and in France and Italy represented a large proportion of the total armoured tonnage.

Between 1860 and 1870, France, Italy, Austria and Spain created armoured sea-going fleets of varying strength. The French fleet was numerically much the largest, though the ships were wooden built and individually smaller than the British average. The Austrian ships were also mainly of wood; but Prussia, Spain and Italy preferred quality to quantity; and if few in number, more than half their ships were iron in construction. Such vessels as the *König Wilhelm* of Prussia and *Numancia* of Spain were quite equal in size and power to the better-class British ships, the *Monarch* excepted. All smooth-bore ordnance had been replaced by rifled before 1870, except in the United States; but whereas France, Russia, Austria and Prussia had adopted breech-loading guns, Britain, Italy and Spain adhered to muzzle-loaders.

Unarmoured tonnage continued to change much less than vessels of battleship design. Only two iron built vessels below the battleship standard had been added to the White Ensign by 1870; the 5700 ton *Inconstant* armed with 12½-ton guns, and the 3000 ton *Active* armed with 6½-ton guns. But frigates as a class were being replaced by other wooden models: these were officially called corvettes, though they were really as large as the frigates of twenty years before, and in many cases carried their armaments below instead of on deck. The iron shell bodies of the *Inconstant* and *Active*

were covered throughout by wood planking, a practice in vogue for the next fifteen years. Being built on much finer lines than the others and with more powerful engines, they were far better steamers; the *Inconstant*'s trial speed of 16½ knots exceeding anything previously known. Both also were fast under sail. Two corvettes and two sloops were armoured experimentally, but thereafter no ships of such inferior dimensions.

In the very numerous sloop and gun-vessel classes of 1870 the composite system of construction had been adopted for new designs. That is to say, keel, ribs and beams were of iron, and the skin or shell of timber. This arrangement improved rigidity and reduced weight. Many had twin screws, driven by engines removed from broken-up units of the numerous flotilla of very small single-screw gunboats specially built for the Russian War; a pair of the old providing machinery for one of the new.

The passage of the next ten years brought changes in certain directions almost as marked as those already recorded. For although displacements scarcely increased at all, steel had begun to take the place of wrought iron by 1880; and very few wooden hulls were left, either among armoured or unarmoured British classes. Five British sea-going turret ships were now afloat: and British guns had gone up in weight to thirty-eight tons; being nearly ten times the size of those of a quarter of a century before. Twin screws were installed in all the later battleships, with compound engines usually vertical, and cylindrical boilers working at 70 lb. pressure. Six British battleships had no masts; and eight coast-defence vessels. Though turret armaments had been applied to sea-going types (beginning with the *Monarch* in 1869) and were considered indispensable to all new battleships by 1880 (owing to the enormous growth of guns), nine central-battery ships had been added to the British service since 1870. But in England these were the last to be built.

Apart from those still building in 1880, the most powerful British battleship was the 10,800-ton *Dreadnought*, armed with four 38-ton guns in two centre-line turrets. Twenty-five years only had elapsed since the most powerful ship had carried one hundred and thirty guns, and on a displacement of merely 6500 tons. The *Dreadnought* was 320 ft. long and 64 in beam. Her heaviest armour was 14 in. thick. Her compound engines and cylindrical boilers gave her a maximum speed of 14½ knots; but she had no sails whatsoever, and only one pole mast for a boat-hoist. Among other novelties introduced since 1870, she had Whitehead torpedoes.

But much more formidable designs had been built abroad; and the most remarkable naval development of the 1870's was Italy's rise to the front rank. While British ordnance had been increasing ten times in size, Italian had increased nearly thirty, by the arming of the battleships *Duilio* and

Dandalo with four barbette guns of 100 tons; and as, moreover, they carried 18 in. barbette armour, nothing in the British service then afloat was a match for either. In France, armoured tonnage, launched in that decade, had been about evenly divided between sea-going and coast-defence types. Most of the sea-going type were still timber-hulled, and most of the coast-defence type iron or steel; but the few iron-built blue-water battleships were distinctly superior to the *Dreadnought*. The *Amiral Duperré* and *Devastation* each carried four 48-ton breech-loaders, besides a strong secondary battery. The *Devastation* was the most formidable central-battery ship ever built. The Prussian navy of the 1860's had become the Imperial German navy after 1870, and its later battleships were medium-sized barbette and central-battery types. In Austria the battleships were all central-battery. Both of these Teutonic fleets carried 38-ton Krupp guns; and both were supplemented by armoured coast-defence tonnage. Shipbuilding in Russia had been negligible, and in the United States had virtually ceased for years.

As regards unarmoured tonnage, out of sixty-three British examples launched during the 1870's, the steel-built twin-screw *Iris* and *Mercury* were the British prototypes of the modern cruiser in general conception and substance. These two were shaped on much finer lines than anything ever serving before under the White Ensign, and displaced 3700 tons on a length of 300 ft. and a beam of 46. With compound engines they steamed 18 knots, a record for the time, and had a radius of action of 4000 miles, which was about double that of any fighting-ship afloat. They carried ten guns of $3\frac{1}{4}$ tons, and four torpedo carriages. Fourteen others of the above total were constructed like the *Inconstant*, with a complete iron (or steel) hull, encased in timber. Five of these were from 4100 to 6200 tons, and carried main-deck armaments of twelve to sixteen $4\frac{1}{2}$-ton guns, with chase guns above. These vessels had speeds of $14\frac{1}{2}$–16 knots. The other nine were all sisters of 2300 tons, with upper-deck armaments of fourteen $3\frac{1}{4}$-ton guns and speeds of 13 knots. Of the forty-seven remaining, two corvettes were the last wooden-framed ships built for the British service; and the rest were all corvettes, sloops, gun-vessels and gunboats of composite construction. The corvettes averaged about 2000 tons on a length of 220 ft., with twelve $3\frac{1}{4}$-ton guns and speeds of 12–13 knots. The sloops varied from 940 to 1130 tons on a length of 160–170 ft., and carried pivot-mounted armaments of four to six $4\frac{1}{2}$- and $3\frac{1}{4}$-ton guns in combination. These and the still smaller gun-vessels and gunboats steamed from 9 to 11 knots. The gunboats were armed with two or three pivot guns of the same calibre as the sloops. All composite tonnage was copper-sheathed. Every unarmoured vessel of 2000 tons and upwards was square-rigged on

all three masts except the *Iris* and *Mercury*. All sloops and gun-vessels were barque-rigged, and all gunboats three-masted brigantine-rigged. Every unarmoured vessel, with the same pair again excepted, had either a hoisting or a feathering propeller, to reduce drag when sailing with drawn fires.

During the 1870's the Mediterranean Powers were devoting more attention to battleship construction than to unarmoured vessels, and few unarmoured vessels were added to their fleets between 1870 and 1880. Of those built in France, about half were wood and the other half composite. In size, in armament and speed they did not differ materially from their British contemporaries, class for class, though they were very unlike them in hull, in rig and general appearance. Italy and Austria built a few of small dimensions; Spain was dropping out. But in Germany, on the other hand, an expanding sea trade and mercantile marine called for a corresponding increase in safeguards; through which the navy was notably strengthened on the unarmoured side by new ships so similar in type, in construction and rig to the larger British corvettes as to suggest international imitation.

Of all the important naval developments of the 1870's, unquestionably the most far-reaching in its later influence on history and naval architecture was the invention of the Whitehead locomotive torpedo. At first only a weapon for steam pinnaces, in a few years it had originated an entirely new description of combatant sea force, which took the shape of very small but fast steel-built carriers, designed especially for its use; and in these may be seen the germ of the modern destroyer. The first British example was the *Lightning*, officially rated as *Torpedo Boat No. 1*, which was added to the service in 1878. She had a displacement of 28 tons, with a length of 85 ft., an armament of three 14-in. torpedo-tubes and a single screw. Her speed of 18 knots was considered marvellous. Other countries were providing themselves with similar small craft, many of which were built by contract in England. The torpedo, indeed, ushered in a new tactical era; and it would be as difficult for a modern officer to imagine a navy without torpedoes, as for his predecessor of fifty years ago to imagine a navy without guns.

The next decade brings this survey to the end of its allotted term. It marked the half-way stage between the three-deckers of the 1850's and the super-Dreadnoughts of the Old war (1914–18); and it witnessed a full continuance of the world-wide advance at high pressure in everything pertaining to the science of sea war. Every dockyard, whether government or private owned, was busy. Russia resumed naval activity (after a long abstinence) with a view to a forward policy in the Far East; and the United

tates began to display naval ambitions for the first time since iron superseded wood. With few exceptions, the minor nations of the globe which oasted of any coast line, whether European, American or Asiatic, followed uit as far as they were able. It seems a question now whether such onditions will ever be seen again.

By 1890 the last armoured wooden hull had long disappeared from the ritish service; and only one battleship with sails remained, the *Temeraire*. Very armoured vessel, built since 1880, mounted her heavy weapons on eck (even if a few lighter were added below) and carried compound ngines, cylindrical boilers and twin screws. British guns had risen in eight to 110 tons, armour had thickened to 24 in., battleship speeds had one up to 16½ knots. All ships carried torpedoes, and all except the very mallest had ram bows. Breech-loading ordnance had been adopted for uture use in the British navy as in all others.

British armoured tonnage now included certain ships, officially classed s cruisers, which rendered the former broad distinction between battlehips and other seagoing types (though not coast-defence craft), that is to ay, the distinction based on armour protection, inapplicable. The new ne was drawn in practice at guns of 30 tons weight.

During the 1880's battleship design had passed through four phases n the arrangement of the main armament. The centre-line disposition, nitiated in the *Monarch*, had given place in five new ships to a diagonal isposition with a view to strengthening end-on fire; then the centre-line isposition was restored in a later design with barbettes instead of turrets; nd was finally re-established once more with turrets as at first. Between 880 and 1890, therefore, four new types had been added to the British attlefleet; but space only permits mention here of the principal details f the two largest, the *Nile* and *Trafalgar*. These two carried armour more xtensively applied in area than their more immediate predecessors and isplaced 11,900 tons on a length of 345 ft. and a beam of 73. Each nounted four 67-ton breech-loaders in two centre-line turrets and a econdary armament of light broadside guns. Their armour was the new ompound of steel-faced iron, 20 in. thick in parts; and their speed was 6½ knots. Italy, however, owned far more powerful ships than these; essels carrying four guns each of 105 tons. Of these two, the *Italia* and *Lepanto* were the largest fighting vessels afloat, with a displacement of 3,800 tons. Their finest French contemporaries were the *Amiral Baudin* nd *Formidable* of 11,400 tons, mounting three 75-ton barbette guns upplemented by a good secondary battery, and armoured with 21-in. ompound armour. Other maritime nations were satisfied for the time with ew ships not exceeding 10,500 tons, carrying four to six guns of about

50 tons, and 15 in. protection. Germany had temporarily fallen behind with even smaller ships. All countries had abandoned muzzle-loading ordnance. Torpedoes had been adopted universally.

Before 1890 the Admiralty substituted the term 'cruiser' for the old titles 'frigate' and 'corvette'; though as already remarked, they did not continue to draw the line of distinction at armour. British steel-hulled cruisers built in the 1880's were officially graded in three classes. Of these, the *First* comprised ships of 5600–9000 tons, with two centre-line 22-ton guns, and six to ten 5-ton guns on the broadside. One group of these carried a belt of 10-in. composite armour on the waterline. Speeds in this class varied from 18½ to 22 knots. The largest of the class was the *Blake*, and she was also the fastest. The *Second* class comprised ships of 2500–4300 tons, with mixed armaments of eight to thirteen 5-ton and 2¼-ton guns, and speeds of 17–20 knots. Of these the *Leander* type were the best armed, with ten 5-ton guns, all on the broadside; while the *Latona* was the best steamer. The *Third* class comprised ships of 1580–1830 tons, with four to six of the same sized guns as the second-class cruisers and speeds of 16–19 knots. The best armed was the *Archer* type with six 5-ton guns; and the fastest ship was the *Bellona*. All three classes were pole-masted with no sails. Such of the square-rigged corvettes as were still on the effective list were re-graded as *Second-* or *Third*-class cruisers according to tonnage; but the composite sloops, gun-vessels and gunboats, of which large numbers were still in commission on distant stations, retained their original distinctive designations. As regards cruisers launched in the 1880's under other flags, the Italians led both in quantity and quality, with vessels corresponding to the British second-class cruisers in size and speed, but armed quite as formidably as the British first-class cruisers. Of these, the finest were the *Etnas*. Next to Italy came the United States with new cruisers of somewhat similar features, such as the *Chicago*. France had concentrated on battleships.

British torpedo-craft had become numerous by 1890, though less so than in some other countries. These vessels were divided into so-called 'torpedo gunboats' and torpedo-boats proper. The torpedo gunboats resembled miniature cruisers of 500–750 tons, and carried a couple of light guns in addition to torpedo-tubes. They were entirely fitted for oceanic voyages. The torpedo-boats proper displaced from 25 to 90 tons and were only fit for coastal duty. British torpedo-craft had speeds of 18–22½ knots. All foreign powers possessed similar types, in which the French and Italians were much stronger than the British, not only in numbers but in quality.

Within the limits of so brief a description as this it has only been possible

o give the barest outline of the main fighting categories in this thirty-year eriod. It was an age of wholesale transformation from top to bottom, xceeding the full evolution of the three previous centuries; indeed a whirl f change produced a succession of new designs literally from year to year. Moreover, the designs changed simultaneously in different directions. ormerly certain well-defined general standards had been common to all avies, such as the ship-of-the-line, the frigate and the sloop, but now very country struck out in its own individual line of development in hull neasurements, armament and protection; in proportions between heavy onnage and light; in specialized types for particular functions, and in deals of speed. In the absence of any actual experience with the new naval rchitecture and ordnance, save at the battle of Lissa in 1866, the entire cience of naval warfare had dissolved into a nebulous condition. Every ountry had its own strategic position to consider and its own tactical heories to work out; with the result that a whole variety of more or less xperimental embodiments of naval force appeared, for which there has een no space for mention here; such as the British *Polyphemus*, the American *Monitor*, the Russian *Popoff*, the French *Grenada* and the German *Basilisk*.

But along certain lines change was gradual and universal. For example, vood was finally abandoned as a structural material; sails were finally bandoned even as an aid to steam; muzzle-loading and cast-iron ordnance vere finally abandoned for offensive armament; and, on the other side of he account, armour protection was introduced, turret and barbette gun-nountings were introduced, compound engines were introduced, and astly locomotive torpedoes were introduced.

[Admiral G. A. Ballard died in 1948]

PETER PUGET: AN ACTIVE AND ZEALOUS OFFICER

By Hardin Craig, Jr

ON 22 May 1948, Peter Puget came ashore from his longboat at Seattle's Port of Embarkation, impersonated by a gentleman with the impressive but perhaps historically inaccurate stature of six feet eight inches. He was preceded by Cleopatra's Barge, bearing the charming contestants in the preliminary round for the title of Miss America; followed by Peter Puget, jun., of the Sea Scouts; and greeted by the legendary Paul Bunyan and Babe, the Big Blue Ox, these two worthies having presumably just dug out the Sound in time for Peter to explore it.

These honours, the climax of Seattle's World Trade Week, will strike one who reads Peter Puget's story as altogether fitting. No one would have enjoyed them more than the real Peter, who never reached the rank of hero in his lifetime. He deserved the title, for as his obituary said he was 'an active and zealous officer, had passed the greater part of his life in active service, and was one of Admiral Vancouver's officers in circumnavigating the globe'. He was a man hating inactivity, and full of ideas; if he was occasionally left on the beach and if his ideas were seldom acted upon, it was no discredit to him or to them. Indeed, although Peter Puget was not a frustrated or a pathetic figure, what we know of his life shows us a man who was the victim of many disappointments and misunderstandings but never a man who was embittered or who gave up trying.

Although Puget's connexion with Vancouver's voyage of discovery, 1790–5, has long been well known, other facts about his family and career have been slow in coming to light. He died a Companion of the Order of the Bath and a Rear-Admiral of the Blue on 31 October 1822. *The Annual Register*'s obituary notice said that death occurred in his sixtieth year, which would mean that he was born in 1762 or 1763. It is probable, however, that he was born somewhat later. His father and mother, John and Esther Puget, were for some time residents in the London parish of St Peter le Poor, and the registers of vital statistics for that parish are preserved in the Guildhall Library. The register of baptisms shows that a son, Peter John Puget, was baptized on 16 November 1765, and this infant can hardly be other than the future explorer and admiral, although

e later used no middle name. Since children were then baptized at a very arly age (the records show that a brother and a sister of Peter were aptized at the ages of ten days and three weeks respectively) it may be resumed that Peter was born about 1 November 1765.

The family was almost certainly of Huguenot extraction and, as in nany similar cases, successful in business. Peter's father, John, is referred o in *The Gentleman's Magazine* as 'merchant' and 'banker'. Peter's older rother, John, who died in 1805, was a governor of the Bank of England nd head of the baking house of Puget and Bainbridge. Various family ills show that all the Pugets were in comfortable circumstances, although ney were by no means millionaires.

Peter Puget entered the Royal Navy on 1 August 1778 as a midshipman nder Captain John Milligan in the *Dunkirk*. Peter would then have been lmost 13 years old, a tender but of course entirely customary age for ntering upon a naval career. The main facts of his professional life can e stated with some accuracy, for there are preserved at least two documents etailing his various posts and commands. One of these, a 'Memorandum f the Services of Captain Peter Puget, C.B.', comes from a Service Book f 1818 in the Public Record Office. It was located by the late Prof. Edmond S. Meany of the University of Washington, in the course of vriting his book about Puget Sound.[1]

With this Memorandum may be compared another statement of services, vritten in Puget's hand in 1806. In that year, being about 41 years of ge and nine a captain, Peter Puget was on half-pay, without active employ- nent. Like many a colleague, he petitioned the First Lord of the Admiralty o give him a ship. Fortunately the Admiralty Papers in the possession of he Huntington Library, covering as they do the naval administration of Thomas Grenville (1806–07), coincide with this period of unemployment nd contain ten letters from Captain Puget.[2]

One of these documents is a Memorial which Peter Puget addressed to he First Lord on 27 November 1806. He sent it first to his friend ohn King, one of the secretaries to the Treasury, being desirous of making vhat interest he could. King, who had already written a note on his riend's behalf, enclosed the Memorial with a second note of 9 December. A comparison of the two service records shows, of course, that they are in ubstantial agreement, although they supplement each other in places.

1 Meany, Edmond S., *Vancouver's Discovery of Puget Sound* (New York, 1907; reprinted 942, Portland, Oregon), pp. 148–52.

2 Admiralty Papers, Stowe Collection, The Huntington Library, San Marino, California; he Library authorities have graciously given their permission for the use of this material. All he letters mentioned are from this collection.

The Memorandum of 1818 is more explicit in usually giving the day and month of the start or termination of an assignment, while the Memorial of 1806 contains more descriptive material and several notes of human interest.

In December 1779, after a year of service, young Peter was transferred to the *Syren*, Captain Edmund Dodd. He spent the winter in the North Sea, 'during which time that ship was frequently engaged'. The Memorandum states that in June 1780 he followed Captain Dodd into the *Lowestoft* on the West Indies station. In this new post Peter remained two years, 'during which time', as he later impersonally explained in the Memorial, 'he was actively employed with the Army when St Kitts was taken and in most of the General Actions. He was doing duty on Shore at Fort Barrington at St Lucia, when the French Fleet were there, and for his Conduct had the Thanks of General S Leger'.

The references here are apparently to the defence of St Lucia in the Windward Islands on 10 and 11 May 1781, when General St Leger's skilful disposition of his troops frustrated landings made at three places from the ships of Admiral de Grasse's fleet.[1] The St Kitts affair was the siege of a British garrison of 700 men by a French force of 6000 landed by de Grasse. Sir Samuel Hood, with 22 ships against 29, appeared upon the scene and in a brilliant action, to which Mahan does full justice, succeeded in outmanoeuvring the French admiral and in occupying his anchorage. Notwithstanding its new position close to the island, the British squadron was unable to turn the tables ashore, and eventually had to withdraw for fear of land batteries, after the British garrison, which had been holding out on Brimstone Hill, finally capitulated on 14 February 1782.[2]

In November 1782 Peter Puget was sent to the *Thetis*, Captain John Blankett, for service at Gibraltar and in the Mediterranean. The recognition of American independence and the armistice with France and her allies soon followed, and in May 1783 the young midshipman went to the *Europa* for what proved to be a four-year tour of duty on the Jamaica station. Here he served under various distinguished flag-officers and captains, among whom he mentioned Gambier, Smith, Innes, Fisher, Gardner and Vashon. For a year after this, Peter had no active employment, and indeed posts were scarce in a period of peace-time retrenchment. In May 1788 he was probably lucky to get back his old job with Captain Dodd in the *Lowestoft*, serving in the Channel. In November of that year he voyaged much

1 Fortescue, *History of the British Army*, Vol. III, p. 349.

2 Mahan, *Influence of Sea Power upon History*, pp. 469–75; Fortescue, *op. cit.* Vol. III, pp. 407–8.

urther; in his own words, 'your Memorialist in 1788 went to India in an ndiaman [he was a midshipman in the *Prince*, Captain R. Dundas] in the ope of joining Sir Richard Strachan in the Vestal; but in which he was isappointed'. This is all we know of this particular venture; Peter eturned to England and was 'immediately received [11 June 1790] as Mate in the Discovery under Captain [Henry] Roberts, who was going ut to survey the East Coast of Africa'.

Lieutenant George Vancouver, who, like Peter Puget and at the same me, had served in the *Europa* under Commodore Alan Gardner, was to ave gone with Captain Roberts as second-in-command. Both Roberts and ancouver had sailed with Captain James Cook on his second and third oyages (1772–5, 1776–9), and although they were young (Vancouver as 32) they must have been considered experienced and reliable in the usiness of exploration. The voyage never took place, for this was the ear of the Nootka Sound controversy with Spain and the war scare esulting in the naval mobilization known as the Spanish Armament.

The north-western coastal territory of America was claimed by Spain, ut actually it was a no-man's-land visited without hindrance by the erchant ships of many nations. The captains, who were usually the wners, were particularly interested in acquiring sea-otter skins by the undred, which they sold at a good profit in China. Nootka Sound was n excellent harbour on the south-west side of what was later to be called ancouver Island, British Columbia; it was then the most frequented port orth of Spanish California.

A certain John Meares, formerly lieutenant in the Royal Navy, had ought his fortune in the fur trade and in 1787 commanded one of two nall ships fitted out by a company of English merchants in India. For ne price of two pistols he acquired a small tract of land at the mouth of Nootka Sound. He then set to work to build a schooner, using as part of is labour force a few Chinamen whom he had brought in, probably the pening chapter of the Chinese immigration problem on the Pacific Coast. On 20 September 1788 the new schooner was launched, another première or the North-west, and soon after this Meares took his other ship across ne Pacific with sea-otter furs and a deckload of spars, these last being robably the first lumber ever sent from that heavily forested coast.

Early in 1789 a Spanish fort was established at Nootka. During Meares's absence there was friction over business debts, and the basic uestion of who owned the Nootka area was raised. British ships were eized (and later released after a refit), and British sailors were made risoner (and later set at liberty after receiving back wages to the amount hich would have been due them in the Spanish service). The reparation

seemed fair to the Spaniards at San Blas in New Spain (whither the ship and men had been sent) but not to captain Meares, who hurried off t London and exploded a bombshell of a memorial to Parliament on 30 Apr 1790. He put his damages at more than £100,000 and claimed th territory about Nootka by right of discovery and of purchase from th natives.

The Roberts expedition, of course, was cancelled; Roberts himself w sent to the West Indies, and Vancouver to Alan Gardner's ship, t *Courageux*. Peter Puget continued in the *Discovery*, which served a Deptford as a receiving ship for impressed seamen. Spain failed to obta help from France, for Louis XVI and his Council had had their treat making wings clipped by the new and ever more independent Natio Assembly. The newly inducted first President of the United States did n feel that the claims of gratitude pressed by Spain for her part in the W of Independence justified another war with Britain, and so the Spani knuckled under, signing the Nootka Convention on 28 October 1790.[1]

On 17 November Vancouver was ordered to wait upon the comman of the Lords Commissioners of the Admiralty. He had been selected t command an expedition to the north-west coast of North America, an was promoted to the rank of Master and Commander on 15 Decembe In his own words, 'it was deemed expedient that an officer should be sen to Nootka to receive back in form a restitution of the territories on whic the Spaniards had seized', as well as to survey the coast from 30° N latitude and to obtain all possible information about the country.[2]

As one of Captain Cook's midshipmen, Vancouver had visited Nootk Sound in 1778. On that occasion Cook had not been able to claim th £20,000 prize which would have been his for discovering a north-wes passage from Pacific to Atlantic, but he had explored the coast northwar for a considerable distance. Peter Puget, whom Vancouver must hav known and liked during their West Indies service, became secon lieutenant.

On 1 April 1791 the little expedition set out from Portsmouth. I consisted of the *Discovery*, not Cook's old ship, but a sloop recently purchased, and the *Chatham*, armed tender. The *Discovery* had a comple ment of 100 men, her consort half as many. Vancouver could choose hi own route and he went out via the Cape of Good Hope, south-weste Australia (where new capes, mountains and sounds were discovered an

1 For a fuller account of the controversy see Meany, *op. cit.* pp. 10, 27 ff., to whose introduc tion and reprint of a part of Vancouver's journal I am indebted for most of the material on thi expedition.

2 Meany, *op. cit.* pp. 11–12.

named for the King and other prominent persons), and New Zealand. The winter of 1792 was spent in the Hawaiian or Sandwich Islands, and the voyage was resumed on 16 March of that year; on 17 April the coast of New Albion was sighted at about 39° N. latitude, near Cape Mendocino in northern California.

Vancouver coasted along to the northward, and on 29 April he ran between dangerous Duncan's Rock and the headland and dropped anchor along the south shore of the straits of Juan de Fuca, the wide waterway which now gives access to the ports of Victoria, Vancouver, Seattle and Tacoma. Vancouver's vessels first proceeded with their work of exploration, penetrating ever further into new bays and inlets. From 7 May to 11 June the expedition, working usually from small boats which would go out with several days' provisions, traced the entire shoreline of Puget Sound from Port Discovery on the Straits to Birch Bay, just south of Blaine.

The final work of discovery was done by Peter Puget and Joseph Whidbey, the master, in the launch and cutter respectively. They were sent off at dawn of 20 May, with orders to keep close to the western shoreline and to explore that branch of the inlet which ran off in a south-westerly direction. They were back in a week exactly, during which time another boat's party under Vancouver had been exploring the eastern shore. 'Thus by our joint efforts', said Vancouver in his journal, 'we had completely explored every turning of this extensive inlet, and to commemorate Mr Puget's exertions, the south extremity of it I named Puget's Sound.'[1] To-day the name applies to the whole body of water south from the Straits.

In addition to the logs of the ships and the great Journal of Vancouver, which was first published in 1798 and to which Puget and Vancouver's brother John gave the finishing touches after the death of its author in that same year, Peter Puget also kept a journal of the expedition. This account has recently come to light in the Public Record Office, and the part of it which bears on the discovery of Puget Sound has been published by Lieutenant-Commander Bern Anderson in the *Pacific Northwest Quarterly*.[2] From it can be learned many curious and interesting facts about the natives and the country, as well as a little about the author.

It is clear that all the people of the expedition were prepared to treat the Indians in a most friendly fashion, and Peter Puget wished to believe the best of the natives in all circumstances. For the most part the explorers found the Indians gentle and trusting: after one session of trading, which

1 Meany, *op. cit.* p. 147.

2 Vol. xxx, no. 2 (April 1939), pp. 177–217: 'The Vancouver Expedition: Peter Puget's Journal of the Exploration of Puget Sound, May 7–June 11, 1792'.

usually consisted of beads, hawks' bells, and bits of copper in exchange for bows and arrows as souvenirs or for venison to eat, Puget wrote, 'Surely then, if these people behave with such Confidence to Strangers, may we not infer, that Innate Principles of Honesty actuated their conduct on this Occasion?'[1]

The burial places of the Indians, usually with the bodies in baskets or canoes hung from trees, fascinated the explorers. The fact that weapons and edibles were placed with the bodies, Peter Puget felt, 'argues strongly that the Indians believe in a future state'.[2] On one occasion a number of human bones were found about a fire at such a burial place and Puget feared that they were the remains of enemies taken in war and then sacrificed, 'but these were merely conjectural Ideas'. It was suspected by some of the party that the flesh had been devoured by the Indians, but Puget rejected the thought, as 'without ocular Demonstration I cannot think any person authorized to fix such an indelible Stain on the Character of any Tribe', and especially, he added, since they were still perfect strangers to the customs of the natives of north-western America.[3]

At one point on his boat trip Peter Puget did get an ocular demonstration of an unpleasant side of native behaviour, and he weathered a nasty situation with credit. He and his men had gone ashore for dinner; a number of Indians collected and began stringing their bows with every appearance of hostility. 'This', wrote Puget later, 'reduced me to a most awkward predicament, for unwilling to fire on these poor People, who might have been unacquainted with the advantage we had over them, & not wishing to run the Risk of having the People [his own men] wounded by the first discharge of their arrows I absolutely felt at a loss how to act'. He ordered the swivel gun of the launch to be fired out over the water, but this did not appear to frighten the Indians. Finally his whole party drew itself up in so resolute a manner that the Indians were overawed and offered their bows and arrows for sale.[4]

An olfactory demonstration was provided by 'an animal called a Skunk [which] was run down by one of the Marines after Dark & the intolerable stench it created absolutely awakened us in the Tent'. And the Puget fairness appeared in his description of totem poles: '. . . wooden images crudely carved, each I think contained one large & others of Smaller Dimensions the former . . . bore more the Appearance of an horrid distorted Face, & whether this Image was a Representation of Deity or an Ornamental piece of Furniture is at present impossible to determine as either may prove fallacious'.[5]

1 Anderson, *loc. cit.* p. 185.
2 *Ibid.* p. 215.
3 *Ibid.* p. 192.
4 *Ibid.* pp. 199–200.
5 *Ibid.* pp. 215–16.

The first work of exploration over, the vessels sailed to Nootka for a conference with the Spanish representative, a distinguished and affable gentleman entitled Don Juan Francisco de la Bodega y Quadra. He was by no means willing to concede the terms of the Nootka Convention as Vancouver understood them, but he tempered his unyielding diplomatic attitude with every attention and hospitality to the British. The great island on which the two leaders stood was named Quadra's and Vancouver's Island.

In November 1792 the little fleet, now augmented by the *Daedalus* storeship, went south to Monterey, and here Vancouver decided to send home Lieutenant William Robert Broughton with despatches and a request for further instructions. Broughton went overland through New Spain, with every assistance from the Spaniards; he later returned in another ship, but too late to find Vancouver. No one was much concerned about Nootka during the subsequent war period, and by the terms of the second Nootka treaty of 1794 Britain and Spain mutually agreed to abandon their claims to property ashore and to trade without hindrance on the north-west coast.

Lieutenant Broughton had commanded the *Chatham*, and on his departure Peter Puget was named as his substitute, 14 January 1793. The expedition spent that winter and the next, 1793 and 1794, in the Hawaiian Islands. During the second season Vancouver, who was on excellent terms with the natives, made a treaty and did what he could towards adding a valuable outpost to the Empire; on 25 February 1794 'Mr Puget, accompanied by some of the officers, immediately went on shore; there displayed the British colours, and took possession of the island [Owhyhee or Hawaii] in His Majesty's name, . . .'.[1]

The summers were spent in further exploration of the Pacific coast of North America, and after the season of 1794 the expedition sailed for home, via Cape Horn. Early in July 1795 the ships put in at St Helena and learned, from the governor, of the expedition under George Keith Elphinstone to capture the Cape of Good Hope. They learned also of its poverty in equipment, and with characteristic zeal Vancouver wrote to Elphinstone that, although he did not flatter himself that it would be of any great assistance, he was sending some brass 3-pounders, together with tents, axes and shovels. In a second letter of 13 July, Vancouver wrote that despatches had just been received from the Cape and that he had taken the liberty of sending duplicates of them with Lieutenant Puget in the *Chatham* to General Clarke at St Salvador (Bahia). Clarke was waiting in Brazil with 3000 troops and represented the third instalment

1 Vancouver, George, *A Voyage of Discovery, etc.* (London, 1798), Vol. III, bk. 5, ch. 2, p. 56.

of a rather ill-equipped and ill-planned expedition; Elphinstone had sent despatches to him direct, and these reached him almost simultaneously with those carried by Peter Puget. Nevertheless, the keenness of the young officers should have cheered the Admiralty at home, for a doubling of information was better than no despatches at all.[1]

Peter Puget fulfilled his mission and also contributed from the *Chatham* some 80 bars of iron and steel and 150 fathoms of 12-inch cable. Finally on 17 October 1795 journey's end was reached, and in his Memorial the young lieutenant noted with pardonable pride that he had not lost a man in all the time he had been out, and that for his services he was promoted to the rank of commander. He was not long out of employment but was soon engaged in convoying transports to Gibraltar.

The expedition to Gibraltar was, so far as can be told, the first and only time when Peter Puget was in sole command of an entire naval operation. In truth it was not much of a command, but the young Master and Commander was on his own. What followed forms an almost incredible tale of adventure, although the Memorandum tells it prosaically enough. It says that Puget's command after his return from the Pacific was the *Adelphi*, taking stores to Gibraltar February–September 1796; 'he was then transferred to the *Esther* with despatches from Gibraltar, September 21 1796, to January 9 1797'. The Memorial of 1806 does not mention the *Adelphi* by name, and she was a hired vessel, too unimportant to be listed by later naval historians. The Memorial, however, does record that thirteen ordnance transports went out, the large size and small fighting power of the force being a significant commentary on Britain's command of the sea. They were to have joined Admiral John Jervis, but before they could do so Spain joined in the war on the side of France and the ships were forced to lie up at Gibraltar. The next development may best be told in Puget's own words: '. . . as the Magazines on that Rock were incapable of receiving all the Powder he brought out, Your Memorialist volunteered to fit up a Vessel, in whose hold 4500 Barrels of Powder were put, and Your Memorialist after mooring her in Rosea Bay, remained on board her for full Six Weeks, though various Attempts were made by the Spaniards to cut her out or burn her, at that Period the Powder was received & for which he had the Governor's Thanks'. The imagination can do a good deal with the picture of young Puget and his men sitting on 4500 barrels of gunpowder in tiny Rosia Bay, under the eastern slope of the Rock, with Spaniards trying to blow them up.

1 For a description of this expedition and the Vancouver letters see Perrin, W. G., ed., *The Keith Papers* (Navy Records Society, London, 1927), Vol. 1, pp. 215–20, 328–9.

It was after the powder was safely delivered that the truly remarkable events began to happen. As Peter Puget was frequently to demonstrate, inactivity was distasteful to him, and so he applied to the Governor, General Charles O'Hara, for permission to take home again such ships as were ready. The Governor, presumably not wishing officially to sponsor a young officer who was zealous to the point of recklessness, refused a written permission but gave his oral assent; the *Esther*, one of the transports, was armed for the occasion with six guns, and off the little convoy went. Besides the *Esther*, it included the transports *Aurora*, *Minerva* and *Nancy*, and the merchant ship *Winchester*.

The Governor's worst fears were realized, for the convoy fell in with a superior enemy force; but he had underestimated the resourcefulness of Peter Puget, who ransomed his command and thus described the incident: 'That Your Memorialist was taken by a 44 Gun Frigate, but he purchased the Transport from the French Captain for £94—which saved a heavy Sum to the Country.' This episode can have but few precedents in the history of naval warfare, and one could wish to know more about it. At all events, 'the whole of the Transports arrived safe, but Your Memorialist had £694 to pay from his private Fortune, without the least Remuneration from Government, and which Sum was paid'.

So much is told by the Memorial, but there had been another episode during the voyage. On their way home Puget and his men captured the Spanish merchantman *El Conde de Galbez*, and the Court of Admiralty later awarded the proceeds to them. The case, however, was appealed by the Crown, which felt it had a better claim than did its naval servants. The Huntington Library has a pair of printed briefs, one for each side, telling the story of the capture and giving the evidence and the judgement of the Court of Admiralty for the information of their Lordships of the Court of Appeal. The two are in essential agreement on the facts, and the respondents' brief is headed as follows:

> Before the Most Noble and Right Honourable the Lords Commissioners of Appeals in Prize Causes. (An Appeal from his Majesty's High Court of Admiralty of England.) El Conde de Galbez, Juan Baptista Ybarra y Artazza, Master.
>
> Our Sovereign Lord the King in his Office of Admiralty, and George Gostling Esquier, Procurator General of our said Sovereign Lord the King in his office of Admiralty, Appellants.
>
> Against
>
> Peter Pugett Esquire, Commander, and the Officers and Mariners of His Majesty's Hired Armed Transport the Esther, the Captor of the said Ship and Cargo, and James Heseltine Esquire, His Majesty's Procurator General, Respondents.

It appears from the brief that on 30 November 1796 the Spanish ship, laden with hides, wool and other cargo, was just completing a voyage from Montevideo to Cadiz when she encountered Peter Puget's warlike

force. She came on unsuspectingly and a warning shot brought her to. Puget's lieutenant, John Gibbs, who had come out to Gibraltar with him, boarded the prize and informed her officers of the hostilities between Britain and Spain, 'of which they were before ignorant'.

The original case was somewhat complicated by the desire of the people of the *Winchester* merchantman to share in the spoils. Many depositions were taken, and this claim was ruled out. No one, of course, supposed that the Spanish captain had any case, although his evidence about the facts of the capture was heard.

The essential point was the status of Puget and of his ship, the *Esther*. The claimant for the Crown in the original case said that the *Esther* did not belong to his Majesty but to her owners, who paid the wages of her crew, although she was leased to the Board of Ordnance; also that Puget and Gibbs were on half-pay, plus such compensation as they might receive from the Board as its agents. In contradiction it was asserted that the officers in question were not on half-pay, receiving as they did the same rate that they would have had in any other ship, and that the *Esther* was 'to all Intents and Purposes, a Commissioned Ship in His Majesty's Service, and legally entitled to make Captures for the Benefit of her Commander, officers, and Crew'.

In clarification of this last point, the original appointment of Peter Puget to take transports to Gibraltar was described, and also Puget's sworn statement about his orders from General O'Hara, to this effect: '. . . that after the Delivery of the said Stores he received from the said Governor O'Hara a sealed Warrant, directing him to return to England with several Transports which had been discharged. That the said original Warrant was, after his Return to England, sent in with other Official Papers to the Ordnance Board, and has there been lost or mislaid, or at least cannot now be met with in that Office, on the most minute Search; but the Tenor and Words of it were nearly as follows:. . . .' There follows a quotation from the Governor, authorizing Puget to take home the transports, having embarked a number of women, children, and invalids, 'for which this shall be your Warrant. (Signed) Charles O'Hara'.

This warrant was a crucial piece of evidence in determining Peter Puget's right to the prize money, and it has an additional interest in view of Puget's later statement, in his Memorial of 1806 to the First Lord of the Admiralty, that General O'Hara would give him nothing in writing. It is hard to believe that Peter Puget would wilfully have misrepresented the facts on either occasion, both because of his obviously honourable character and because of the danger to a young officer from prevaricating with those in authority, who could easily have written a letter to Gibraltar and verified the

whole story had they chosen to do so. No ready solution to this contradiction is apparent. It is, however, clear from the briefs that Puget's original instructions expected him eventually to return home with the transports, so that he was acting properly in making the trip, warrant or no warrant.

There was no doubt that the *Conde de Galbez* was a prize. Their lordships of the Court of Appeal, headed by the Earl of Chatham, reaffirmed that. On the final blank page of the respondent's brief is written, in a contemporary hand, the decision of the Commissioners, as pronounced on 24 November 1798. It came almost exactly two years after the original capture, and it went against Peter Puget, his faithful lieutenant, and their men: 'The Lords pronounced for the Appeal, reversed the Sentence appealed from condemning the Ship & Cargo as good & lawful Prize taken by His Majesty's hired armed transport the Esther P. Pugett Esqr. Commander & retained the principal Cause & therein condemned the said Ship & Cargo as good & lawful Prize & as Droits & Perquisites of His Majesty in His Office of Admiralty.'[1]

The original award of the prize money to Peter Puget and his men was made on 8 August 1797, but proceedings had been begun on the 18th of the previous January; perhaps on the strength of his expectations Puget married on 6 February 'Miss [Hannah] Elrington, daughter of Capt. E.'[2] It is typical of Puget source material that the place where the marriage took place should have been omitted from this notice in *The Gentleman's Magazine*, as well as any identification of the bride's father; there were apparently no Captains Elrington in the Navy or Marines at that time but there were three in the Army. Like the Pugets, the Elringtons have attracted little biographical attention. At all events there is convincing evidence that five sons and four daughters were born of this union and that the marriage was a most happy one.

The honeymoon must have been short and Puget's standing excellent, for Lord Spencer soon gave him employment and Sir John Jervis, soon to be Lord St Vincent, made him a post captain and put him in command of one of the Spanish prizes which Nelson had boarded in the famous victory of St Valentine's Day 1797. Although he was not allowed to keep the *San Nicolas*, Puget was confirmed in his new rank as of 29 April 1797 and did command six ships-of-the-line in the course of the next seven years.[3] This frequent change was, of course, creditable rather than the

1 The other Commissioners of Appeals in Prize Causes, as given in this document, were Sir R. P. Arden (Master of the Rolls), Earl Spencer, Lord St Helens, Lord Minto, Lord Walsingham, Sir William Wynne, and Sir William Scott.

2 *The Gentleman's Magazine* (London, 1797), Vol. LXVII, pt. 1, p. 522.

3 The ships were the *Tromp*, *Temeraire*, *Barfleur*, *Temeraire* again, *Monarch* and *Foudroyant*.

reverse; it meant that the ships' commissions were short, for one reason or another, but that Puget was never allowed to be idle. The Memorial mentions a severe accident which befell Puget on board the *Foudroyant*, when he fell from the poop to the lower gun-deck. The Memorandum places him in that ship from February 1804 to June 1805 and as agent of prisoners in France from April to September 1806; the interval between those employments would have been the time when he was recovering from the effects of his fall.

On 13 October 1806 Peter Puget sent a brief note to Thomas Grenville, the new first Lord, offering his services for active duty. He said he would go wherever they might send him and gave Sir Harry Neale as a reference for his professional character. A note on the back, in Grenville's hand, says 'acknowledge receipt of his offer of service, but cannot make any engagement on that subject'.

The next communication was the Memorial of Services, which came in with John King's covering letter on 9 December. This was more productive of results, for as the manuscript Book of Appointments shows, Peter Puget was nominated to command the *Prince* on 20 December. Mr King wrote on the 23rd to thank Mr Grenville for giving his friend this appointment, but his thanks were premature. Puget did not get the *Prince*, although the reason does not appear. However, he got another ship on the 29th and wrote the next day to Thomas Grenville, expressing his thanks and signing himself 'Capt. of His Majs. Ship Gibraltar'. Then came another disappointment, very trying to the spirit of an officer who was anxious again to walk his quarter-deck. The *Gibraltar* was at Torbay, and Puget went to Plymouth to secure passage out to her; there he was informed by Sir William Young, the Admiral of the port, that a commission had just been received reappointing Captain Lake, the *Gibraltar*'s former commander, to his position. All of Puget's baggage had been embarked on board the *Adrian* cutter, and it all had to come off again. This was reported by Puget to Grenville on 11 January 1807; he proposed to come to London to await further orders.

These orders were apparently for him to stand by, for he retired to Presteigne, Radnorshire, from which his next letter to the Admiralty was written on 26 January. Its opening sentence tells the story of a third disappointment: 'In Obedience to their Lordships Orders I had prepared to set off to join His Majestys Ship Agamemnon at Chatham, when this Morning I received a letter from Mr Marsden [First Secretary of the Admiralty] directing me to return that order it having been sent to me by Mistake.' Peter Puget spoke politely but with feeling of his repeated disappointments, and the authorities at the Admiralty, according to a note

on the back of the letter, wrote to him 'that he will not be forgot when a proper occasion occurs'. In the circumstances the Admiralty was almost obligated to do something for Puget, and the next letter of thanks, dated 8 February 1807, was for his appointment to command the *Goliath*. This ship he was allowed to join.

Although he expressed gratitude in this last letter, Puget also requested that, 'should an opening present itself for a ship of the Goliath's Class to be sent to the Mediterranean', he would be doubly grateful to have it. A very different service was in store for Peter Puget and his new command, however, for they went with Admiral James Gambier on the second Copenhagen expedition, sailing 26 July 1807. The climate of the Baltic did not cool Puget's nature, and evidently his admiral knew that he was the man for warm work; on his return Gambier reported that although the nature of the fleet's service had not given him much chance to speak of individual exploits, 'yet the gallantry and energy displayed by the advanced squadron of sloops, bombs, gun-brigs, &c. which were employed, under the command of Capt. Puget, to cover the left wing of the army from the Danish flotilla, ought not to be passed over in silence'.[1] The Admiral particularly praised their steadiness on one occasion when these small craft, operating in shoal water away from the protection of the big ships, had endured for more than four hours the most concentrated fire which the Danes could pour upon them.[2] It should be added that Peter Puget was selected for this service from a body of officers which included 26 captains in the line-of-battle ships alone.

In the next year, 1808, Puget was back in the Baltic under Vice-Admiral Sir James Saumarez; in 1809 he went to Holland with the ill-fated Walcheren expedition, where he was appointed captain of the port of Flushing and commissioner for the naval and victualling departments. From 1810 to 1818 he served as Naval Commissioner of Madras and Trincomalee, his longest appointment in any one position.[3] On his return to England an honour came to him, although the manner of its coming was somewhat reminiscent of other official errors: '[August 1819] His Royal Highness has also been pleased to nominate Captain P. Puget, of the Royal Navy, to be a Companion of the said Order of the Bath, the name of this officer having, by mistake, been formerly omitted'.[4] When it was too late to fly it, Peter Puget obtained his flag as Rear-Admiral of the

1 Quoted in *The Gentleman's Magazine*, Vol. LXXVII, pt. 2 (1807), p. 872.

2 Admiral Gambier's public letter of thanks to Peter Puget for this service is printed in *The Naval Chronicle for 1807*, Vol. XVIII, p. 377.

3 *The Gentleman's Magazine*, Vol. XCII (1822), pt. 2, p. 478.

4 *Ibid.* Vol. LXXXIX (1819), pt. 2, p. 359.

Blue on 19 July 1821. His long residence in India had injured his health and after a long and painful illness Peter Puget died on 31 October 182[illegible] at Grosvenor Place, Walcot Parish, Bath.[1] The place of his burial is as ye[t] unknown.

Such are the main outlines of what Peter Puget did, but no account o[f] his life should omit those things which he proposed to do. He was evidently a man of fertile imagination, interested in many aspects of his profession but not one who failed to base his ideas on fact.

His best-known scheme is that for attacking the large French squadron blockaded at Brest for so many years by St Vincent, Cornwallis, and others. Puget's *Foudroyant* was on the Brest station under William Cornwallis in the summer of 1804. The inactivity of merely cruising in and out, waiting for the French to do something, was as usual not pleasing to the captain. He accordingly presented to his admiral a carefully worked out plan for attacking the anchored Frenchmen with fireships and accompanied it with a chart of the proposed operation. Admiral Cornwallis thought well of the project, as did Lord Melville at the Admiralty. Melville wrote: 'It is certainly a general impression I entertain on such occasions that very bold and daring enterprises generally succeed, and Captain Puget seems to detail his project very distinctly, together with the grounds on which he founds his hopes of success. The national advantages attending its success are too obvious to require illustration'. (Melville to Cornwallis, 10 July 1804.)

The entire story may be read in the Navy Records Society's work on the blockade of Brest, and the mere preparations are exciting enough.[2] According to Puget's plan, the fireships were not to be sent out until the time of attack, so as not to put the enemy on his guard. Orders were given in England to prepare the ships, but then began a series of vexing delays. By August, Captain Charles Brisbane was put in immediate charge of the enterprise, to be seconded by Captains Puget and Patrick Campbell. Puget, though his disappointment was obvious, was ready to serve as a second. Indeed Captain Brisbane was a fire-eater of Puget's own stamp; he modified the original plan somewhat but apparently did not change its

1 Professor Meany discovered *The Bath Chronicle* (7 November 1822) which gives this information. Inquiries into Bath parish and Abbey records have been unproductive. There are brief obituary notices also in *The Times*, *The Gentleman's Magazine*, and *The Annual Register*. Peter's eldest son and namesake became an actor and manager on the American stage, under the name of Peter Richings; J. N. Ireland's *Records of the New York Stage*, Vol. I, p. 387, says that about 1816 he obtained a position in India but that soon 'after his arrival his father was seized with paralysis, and he was obliged to return with him to England....'

2 Leyland, John, ed., *Dispatches and Letters Relating to the Blockade of Brest, 1803–1805* (Navy Records Society, London, 1902), Vol. II, pp. 1–32.

essentials. Brisbane enjoined that no prisoners were to be taken, nor was any of the raiders to allow himself to be taken alive, and he urged those who might have volunteered thoughtlessly to withdraw without feeling that there would be any reflexion upon their bravery: 'I shall be more obliged to them to keep back if they do not feel themselves ready and equal to execute this service at the expense of their lives'.[1] Although the enterprise had full backing, and although the best ordnance man in the kingdom, William Congreve of the Royal Laboratory at Woolwich, gave his assistance with the combustibles, the preparations lagged.[2] Lord Melville expressed irritation, but it was hard to fix the blame.

Indeed Lord Melville himself began to show a spirit which may be called less than Churchillian. He talked the plan over with the professional naval men of his Board, and they took a conservative view. The enemy must be 'supine byond example', they held, if he was not ready for just such an attempt. Lord Melville did not veto the undertaking, but he passed on this opinion to Cornwallis, who relayed it to the captains.

By the middle of October Cornwallis wrote to Melville that the delays had postponed the attempt far beyond the intended time, that Captain Puget had observed the enemy's ships to change position somewhat, and that the unfavourable opinion of the Board of Admiralty 'did also a little damp the ardour of some'. Nevertheless, they were ready to carry out orders. But the orders never came, and in November Peter Puget wrote to Lord Melville to commend the zeal of the lieutenants who had volunteered, 'as the plan for destroying the enemy's fleet in Brest appears for the present abandoned'.

As far back as 23 September, however, Peter Puget had evidently realized that nothing would come of the original plan and had typically and hopefully proposed an alternative to his admiral. He professed some hesitation in broaching the scheme, since the presentation of plans had been so frequent of late. Nevertheless he had an idea for an improved blockade of Brest: a squadron of small vessels to form an inshore blockade, to be accompanied by fireships so as to attack immediately if any small squadron of the enemy should expose itself. This close watch would act to prevent any convoys of the enemy from slipping through and would give early notice of enemy fleet movements. Puget wanted the command and would not mind giving up his present ship to get it. With the group of young lieutenants who had volunteered for the other enterprise he felt sure that the plan would be successful. It might well have been so, but

1 *Ibid.* p. 21.

2 This was not William Congreve the inventor of war-rockets, as stated in the N.R.S. volume, p. 13, n. 1, but his father.

there is no indication that this proposal was acted upon any more favourably than that for the fireship foray.[1]

Although Peter Puget was soon incapacitated by the effects of his fall on board the *Foudroyant*, he was by no means reconciled to letting the enemy rest undisturbed, and he presently submitted to the Admiralty a 'Plan for taking Ushant and retaining it'. This plan, signed and in his own handwriting, was dated 27 December 1805 and must have been written during Puget's convalescence. The fact that it was preserved for later Boards to see, at least until the Grenville administration, shows that the authorities thought well of it.

The little island of Ushant, off the western tip of Brittany, was passed by the British squadron every day in its blockading duties; Puget pointed out that it gave the enemy an advanced signal post, from which British fleet movements were reported. Further, he had reliable information that the garrison was weak and had been lulled into a state of security and unreadiness, since it had never been attacked. A force of 700 men would be enough to carry the island, Puget was sure, together with 24 light 18-pounders, in case the guns were found spiked, and 300 bags of pressed hay, to be used immediately as breastworks and later as fodder for the island's cattle. He described further defence measures and detailed the great advantages which would accrue to the British, including the eligibility of the island as a temporary hospital, where convalescents could take the air 'without the possibility of desertion'.

This plan, although entirely practicable, was never acted upon. Peter Puget's next effort, at the time in 1806 when he was petitioning for active service, was a plan for the capture of Valparaiso. It was sent to John King, with the request that he put it in the hands either of Lord Grenville, the Prime Minister, or of his brother Thomas Grenville at the Admiralty, and 'If you have an opportunity, pray remember I am on half Pay'. Apparently in reference to some former conversation or letter he added: 'The attack on Cadiz would be Glorious—if undertaken on the Plan I gave you respecting Brest.' And again, at the end of the Valparaiso letter: 'Why do we not attempt to burn the 12 Sail of the Line at Cadiz, it might be easily done—& there are plenty of Men who would undertake it.'

The project for the destruction of the remnants of the defeated Trafalgar fleet is not further mentioned, but the Valparaiso plan is extremely interesting. The letter proposing it was written on 13 October 1806. Puget says that he had stopped in Chile on his voyage home from the

1 Puget to Cornwallis, *Foudroyant* off Brest, 23 September 1804; *Blockade of Brest*, Vol. II, pp. 77–9.

North Pacific. He mentions the fortifications of Valparaiso, which were trong, but could be turned; the national militia were not greatly to be eared. The possession of this strong point would give control of the entire vest coast of South America from 33° South to Cape Horn; Valparaiso was 700 miles across the mountains from Buenos Aires, and through it went he gold and silver from the mines near Santiago ('St Jago'). The in- abitants have 'a Partiality to the English & a still stronger Partiality to our Manufactures'. Not only would there be a large South American narket, but also trade with the Pacific islands would be greatly facilitated nd there would be an opportunity for the development of an Hawaiian ugar industry: 'With very little Expence Sugar to an immense Extent ould be made, sufficient to supply the whole Continent of South America, or the Cane at Owhyhee and the Friendly Islands grows spontaneously and o a great Size, without being used for any purpose at present, but feeding Pigs.' The possession of Valparaiso would also provide a base for whaling essels, which at the time were subject to great inconvenience 'by their aving no Port to resort to, but Staten Land'.

Peter Puget's idea was probably perfectly sound but was based on a mis- pprehension. In his opening sentence he states that it is the capture of Buenos Aires which has induced him to propose the plan. The reference s to Commodore Home Riggs Popham's unhappy venture from the Cape of Good Hope to Buenos Aires in the summer of 1806. In October the complete failure of the expedition was not known at home.

In connexion with this South American expedition it is interesting to ote that Secretary Windham sent a plan for the capture of Valparaiso to Brigadier Robert Craufurd, who was to command the land forces. Sir John Fortescue takes a sarcastic view of the scheme, calling it 'one of the most stonishing plans that ever emanated from the brain even of a British Minister of War'.[1] The plan was to conquer Chile as gently as possible, coming as protectors rather than plunderers. A force of 4000 men with dequate ships was to be employed, and communications were to be established with the east coast. The Secretary's letter to Craufurd is dated 30 October, Puget's letter and plan two weeks earlier, 13 October. It is certainly true that plans for detaching the Spanish colonies from the mother country had been considered for some time,[2] but it is possible to believe hat the Captain's project was sent over from the Admiralty to the War Office and there acted upon. If so, it was a pity, considering the way the expedition was carried out; Craufurd's force departed early in December

1 *History of the British Army*, Vol. v, pp. 376–8.

2 See confidential letter from Popham to Yorke, 26 November 1803; *Letters and Despatches of Lord Castlereagh*, Vol. vii, pp. 288–93.

1806 and after extraordinary delays and misunderstandings was diverted to South Africa and did not reach South America until June 1807.

Sending good money after bad, Lieutenant-General Whitelocke was dispatched as senior officer with another force early in March 1807. He actually reached Montevideo ahead of Craufurd; when the two forces joined, an attack was made on Buenos Aires and failed.[1] The secret instructions to Whitelocke, a copy of which went to the Admiralty and thus into Mr Grenville's papers, gave the General discretionary powers to attack the west coast of South America if, and only if, the conquest of the east side had succeeded. Thus Peter Puget's plan was in line with official thinking, but faulty execution over great distances caused the enterprise to fail.

It is probable that Peter Puget had yet other ideas for the advancement of his Majesty's arms and trade, and in time they may come to light. Puget's eight years' service in India in middle life removed him from the active theatres of the Napoleonic War and seems to have ruined his health. But even when his whole life story is known it will not convey the impression of a liverish old Anglo-Indian but rather of an active young officer exploring new seas, planning new enterprises, 'ready and equal to execute this service at the expense of his life'.

1 *History of the British Army*, Vol. v, pp. 387–96.

DESCRIPTION OF ROYAL AND SIGNAL COLOURS, ETC. (1702 TO 1837)

Continued from Vol. 37, p. 164

By Commander Hilary P. Mead, R.N.

II

(ii) Descriptions of the Signal Flags

'EMS NOS. 13–19

These are the scale drawings of the signal flags, dated December 1761, in use in the Navy at e period. There are twenty-four rectangular flags, three admirals' boat flags, Spanish and ortuguese ensigns (used for signalling), and ten pendants. The drawings serve to confirm the ideas at have already been formed about them in Perrin's and Corbett's compilations, and in various her works, such as Greenwood and Millan, and numerous manuscript pocket-books in the fferent collections at the Admiralty Library, National Maritime Museum, Royal United Service stitution, and in private ownership. The rectangles are as follows:

os.	Nos.
1 Standard	14 Striped red and white[1]
2 Union Flag	15 Striped yellow and white
3 Red	16 Striped blue and white
4 Blue	17 Check'd red and white[2]
5 Yellow	18 Check'd blue and white
6 White	19 Check'd blue and yellow
7 Red, white cross	20 Check'd blue and red
8 Blue, white cross	21 Strip'd yellow and white from corner to corner[3]
9 Blue, red cross	
0 Red, blue cross	22 Blue, pierced white
1 St George's flag	23 Half blue and white
2 Genoese flag (Fig. 1)	24 Half red and white
3 Red, white and blue (*horiz.*)	

Small flags of a jack size for boats:

os.	Nos.
5 Red with three white balls	28 Spanish ensign
6 Blue with three white balls	29 Portuguese ensign
7 White with three blue balls	

1 These three striped flags contained twenty-two horizontal stripes.
2 The four chequered flags contained no fewer than 176 squares each.
3 Contains thirty-four stripes, *bendy*, white at top.

(Noted) N.B. The Spaniards altered their Flag in the year 1787.

The pendants are as follows; they are all the same length but Nos. 30–35 are a little narrow than Nos. 36–39:

Nos.		Nos.	
30	Red	35	Blue with red cross
31	White	36	Check'd blue and yellow
32	Blue	37	Check'd red and white (Fig. 2)
33	Red with white cross[1]	38	Check'd blue and white
34	Red with blue cross	39	Check'd blue and red

Nothing could be more ill-chosen than this range, some of the worst signal pieces the Navy h ever been cursed with. The blue with red cross, and the red with blue cross were bad enough, b the chequered pieces could only have been more unsatisfactory still. When one used to see flags

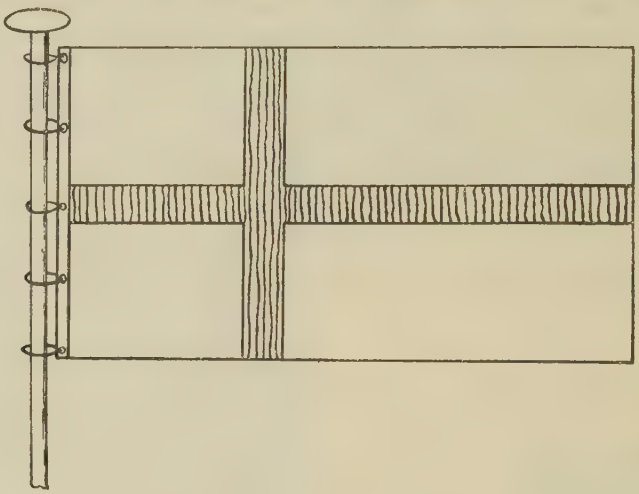

Fig. 1. Naval code of 1761: Genoese flag.

Fig. 2. Naval code of 1761: Signal pendant.

manuscript signal books containing as many as thirty-six chequers their accuracy was discredit and the multiplicity was put down to exaggeration. Now we have it on unquestionable author that the rectangular flags contained no fewer than 176 chequers! The chequered pendants co tained about 144. A manuscript book of 1781 shows a blue-and-yellow chequered pendant wi about 50 chequers, and until now it was not taken seriously. To-day we see that our ancestors d

1 The cross at the hoist.

rive to portray the objects as faithfully as possible. Of course these chequered flags could only have een impossible optically, appearing at a little distance merely as a blur, while the business of ewing them, especially the pendants, must have afforded the seamstress a pretty problem.

Another surprising, as well as bad, feature of this range is that it contains both the St George's ıg and the Genoese flag as signal pieces, next to each other. The only difference between them is ıat the St George's has the cross central, while the upright part of the Genoese cross is somewhat earer the mast (Fig. 1). How could such a difference be observed when one was trying to read signal? Mr Perrin had no idea of this, I am sure; in fact, he speaks of the Genoese ensign as imilar to an elongated St George's flag'. He does not refer to it later than 1691.

No explanation is forthcoming as to the admirals' boat flags; the three balls are placed in ıe centre and the necessity for them is not apparent. An admiral of the White presumably ould use a plain white flag, and leave those with one and two balls to the vice-admiral and rear-imiral respectively. The designs bear little relation to those authorized in 1702; between 1702 ıd 1805 Perrin mentions no change.

TEM NO. 20

This is a list of the signal flags to be used by Admiral Lord Howe, and the ships under his ommand, in June 1790. There is little need to introduce them to the student; the range is most miliar owing to Perrin's work, and owing also to the fact that many copies of the 1790 *Signal Book r the Ships of War* are now available. There are a few variations from Perrin's coloured plate and escriptions. Nos. 1–10 (nought) are as usual, except No. 2, white with narrow red border; and lo. 5, quarterly, *white* and *red*. Nobody knows this flag to be more controversial than the present riter, but in this instance it is both coloured and written down in its 'reversed' form. The rest of ıe pieces are as follows:

Nos.		Nos.	
1	White	16	Red and white (*horiz.*)
2	White with blue cross	17	Blue and yellow (*horiz.*)
3	Red with white cross	18	Blue and white, striped (5 *horiz.*)
4	Blue and yellow, checqued (16 *of yellow and blue*)	19	Blue, cornette
		20	White and black (*horiz.*)
5	Union	21	Yellow

After No. 21 an extra piece has been interpolated, a white and red 'cornette' without number r name. Next there is a list of 'Triangular, Divisional Flags', not depicted. They appear on page 4 f the *Signal Book for the Ships of War*.

Nos.		Nos.	
1	Red	5	Blue, white stripe
2	White, red stripe	6	Yellow, red stripe
3	Blue	7	Yellow
4	Red, yellow stripe	8	White, with red fly

In the printed Signal Books the last three are in a different order. So far the lists relate to the ags to be supplied to the flagship; it is well known that the signal book contained signals *from* the dmiral, and then signals from private ships *to* the admiral. Separate sets of flags were needed, and

evidently the admiral's set was not supplied to a private ship. Next in this item is 'A List of sign flags to be delivered to the ships under the command of Earl Howe', as follows:

Nos.	Nos.
1 Red	5 Red and white (*horiz.*)
2 White	6 Blue and yellow (*horiz.*)
3 Blue	7 Red, white, blue (*horiz.*)
4 Yellow	

N.B. Examples of all the flags are at Portsmouth.

Signal Pendants for the Private Ships

Blue and yellow checqued	white
red	blue

ITEM NO. 23

Sheerness, 10 April 17[illegible]

Honoble Sirs,

Sir Sidney Smith having made application this day to be supplied wi Signal Colors agreeably to your directions of the 31st ultimo; But as t Diamond is expected to sail this day, he will only be in want of one set f the Syren, and one set for the Childers, which are expected here very soo and request they may be supplied us without loss of time, conformable t the sorts hereunto described, but the dimensions for Repeating Frigate

We are, Honoble Sirs, Your most obedient servants

Rd. Pering

E. P. Henslow

Honoble Navy Board

The drawings are marked 'Copied from the Sheerness drawing. Of the signal flags and pendan one complete set as here delineated for each gun vessel.' The eleven rectangular flags were to 'three breadths, fly three yds.' (a breadth was 2 ft.); the eleven pendants, '1½ brdths, six yc long'; and eleven triangles, 'hoist 2 brdths, fly 2 yds'.

Rectangular flags	*Pendants*	*Triangles*
Red	Red	Red
Blue	White	White
Red over white	Blue	Blue
White over red	Red and white, halved	Red, white, red[1]
Blue over yellow	White and red, halved	Yellow, red, yellow
Yellow over blue	Red and blue, halved	Blue, white, blue
Red with white cross	Blue and yellow, halved	Yellow, blue, yellow
Blue with yellow cross	Yellow and blue, halved	Blue, white, red[2]
Blue, pierced white	Blue, white, red	Red, white, blue
Red, white, blue (*horiz.*)	7 stripes, white and blue (*horiz.*)	White, red, white
White	11 stripes, red and white (*vertical*)	Yellow, blue, yellow

1 The first four parti-coloured flags divided horizontally.
2 The last four parti-coloured flags divided vertically.

Ensigns	Dutch, French, Spanish	Hoist 16 breadths Fly, yards proportionate
Jack	Dutch, French, Spanish, Union	Hoist 8 breadths Fly, yards proportionate
Pendants	Dutch, French, Spanish	proportionate

ITEM NO. 25

Signal Pendants for the Flag Ships of Lord Bridport's Fleet per Admiralty Order 15 October 1799

(*A drawing only*)

Red, White, Blue (*these three somewhat smaller*)

Red and white, Red and blue, Yellow and blue, Blue, yellow, blue *vertical*

White with red border top and bottom

Ten white and red chequers

Twenty-one red and white vertical stripes

Eighteen blue and yellow vertical stripes

ITEM NO. 26

Warrant of 11th July 1800 to Portsmouth and Plymouth Officers to supply the Channel Fleet and that only, with the following Colours, vizt.

Signal Pendants	Yellow	4 No.
	French	4
	Blue with yellow stripes	4
	White with blue stripe	4
	White with yellow fly	4

in addition to former Orders

ITEM NO. 27 (marked '26', an error)

Ville de Paris, off Ushant, 15 July 1800

Gentlemen,

I enclose a sheet of the distinguishing Pendants which I have adopted for the use of His Majesty's Squadron under my command, and desire you

will be pleased to give directions that the Ships thereof may be supplied wit the Pendants accordingly

I am, Gentlemen, your most obedient humble serva

ST VINCENT

Recd 22nd

(*Minuted*) 8 August. Acquaint his Lordship we have given the necessa directions to the Officers of Portsmouth and Plymouth Yards, and ha desired the Contractor to proceed as fast as possible in providing a numb of each sort for each of the said Yards.

(ii) This is a Pendant 'Board', printed, with the names of seventy-seven ships and nine cutte in print or MS.

The title is Distinguishing Signals with Single and Double Pendants. (Printed by March a Teape, Tower Hill, for His Majesty's Stationery Office.) Given on board the Ville de Pa 23rd May 1800.

(*Endorsed*) For Ships of the Channel Fleet. Received in Lord St Vincent Letter of 15 July 1800. See annexed sketch with the Contractor's descr tion. (Item No. 28.)

The pendants reading downwards are: red, red and white, blue, yellow, five red and wl vert. stripes, five blue and yellow vert. stripes, blue white red, red white red horiz., blue and yello yellow and blue, blue yellow blue horiz., white blue white horiz.

Across, the same, with white (marked 'Substitute') added.

This table is for double pendants. The right-hand column is worded, 'Single pendants wh hoisted'; the places are twelve in number as follows: main, fore and mizzen topmasthead; starboar and larboard, main, fore and mizzen topsail yard-arm; either main, either fore and either cross-ja yard-arm.

ITEM NO. 28

Pendants recast and described.

This is merely a MS. copy of the pendants in the foregoing item, coloured, and ships' name omitted.

ITEM NO. 29

(Copy) Admiralty Office 22 September 180

Gentlemen

We do hereby desire and direct you to cause all such of His Majesty' Ships as have been supplied with the Signal Flags, to be furnished with Flag cheqd Yellow and Blue, containing 16 chequers, described at the foo hereof.

We are &c.

Navy Board

(*Flag not described in the item*)

ITEM NO. 37

(Copy) Admiralty Office 30 November 1815

Gentlemen,

Having prepared a new set of Signals for the Navy, for which the Flags shewn on the enclosed Paper are to be employed, We do hereby desire and direct you to provide a proper proportion, and of the dimensions stated, for all Ships on the Peace Establishment, acquainting us when they may be ready to be issued.

And we refer you to our Order of the 29th May last, for making a set of Flags and Pendants on the principal proposed by Sir Home Popham, observing that the Flags now directed to be provided, are to be made on the same principle.

We are Your affectionate Friends

Navy Board

ITEM NO. 38

Flags for the Use of His Majesty's Navy.

Sir Home Popham's code

(*scratched out in pencil*)

Drawings in colour of Popham's signal pieces, as in the frontispiece of his code

Rectangular flags marked	11 × 10 (ft.)
Cornettes marked	15 × 10
Guidons marked	14 × 11
L, M, N, O pendants marked	26 × 7
Answering, Numeral and Interrogative pendants marked	24 × 6

+yellow triangle for 'Convoy'

General Distinguishing Pendants

6 feet Tack, 24 feet fly

1–9

Exception to Popham's design, guidon F is yellow over red, instead of vice versa.

Inset: Additional for Flag Ships. Triangles: Centre squadron, red, blue, Starboard, Larboard, Frigates and Detachments; and Blue Burgee.

ITEM NO. 39

(Copy) Admiralty Office 3 January 1816

Gentlemen

I am commanded by my Lords Commissioners of the Admiralty to transmit to you herewith a Drawing of the Sections of the several Flags, Cornettes, Triangular Flags, and Pendants upon the plan proposed by Rear-Admiral Sir Home Popham: and to signify their Lordships' directions to you

to cause a Copy thereof to be made and sent down to each of the Dock Yards with as little delay as possible, and in addition thereto to send a pattern set of Flags &c. as soon as a set has been made up and can be spared from either Woolwich or Deptford, to Portsmouth, Plymouth and Sheerness.

I am &c. J. Barrow

(*Endorsed*) Letter hereon to Commissioner Cunningham respecting Deptford and Woolwich 9 January; and letter 27 January to Chatham Sheerness, Portsmouth and Plymouth Officers.

ITEM NO. 40

Sections of the several Flags, Cornettes, Triangular Flags and Pendants directed to be made by the Lords Commissioners of the Admiralty, by a Scale of narrow and broad breadths of Buntin, particularly explaining the mode of cutting the Cornettes and Triangles, and placing the several Selvages on the outside

(*Endorsed*) Original drawing received from Admiralty with their Lordships' Order of 3 January 1816

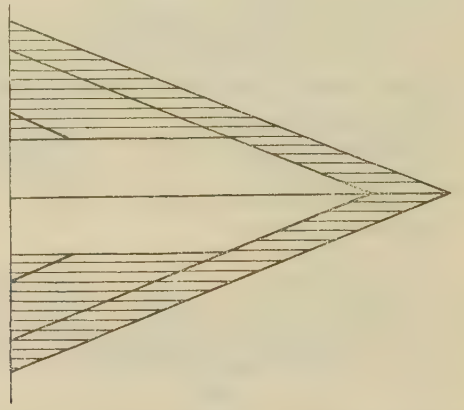

Fig. 3. Popham: flag H.

In 1816 Sir Home Popham's vocabulary code was for the first time officially embodied in an official publication, under the title *Telegraphic Signals for the use of His Majesty's Fleet*. It is a large 4to book, and as several copies are in existence I do not propose to describe the flags in detail; they may be seen in the coloured frontispiece. Popham was a great exponent of this cutting and sewing of 'buntin', and received a vote of thanks from the Society of Arts for the invention. The item is a very large folded sheet with scale drawings of the flags in colour, showing the arrangement of the breadths and half breadths of bunting. A breadth was 20 in., the rectangular flags being six breadths in the hoist, namely 10 ft. The Preparative, the same as the twentieth-century one, was five horizontal stripes of blue and white, but in order to arrange the bunting as satisfactorily as possible, the blue stripes were a breadth each, and the white were slightly wider at a breadth and a half. The white with red border (Negative and Annul) was now becoming more like its twentieth-century counterpart, the border being far less narrow. The border was a breadth while the white

part was four breadths deep. The arrangement of the breadths in the triangular flags with 'tongues' can be seen from Fig. 3. The following are the dimensions of the different pieces: rectangulars, 10 ft. by 10 ft. 10 in.; triangles, 11 by 14 ft.; cornettes, 10 by 15 ft.; pendants, 5 ft. 10 in. by 24 ft.; the pendants L, M, N and O (here marked 'compass pendants') are for some reason slightly larger, at 7 ft. by 25 ft. 8 in.

In addition to the flags shown in the frontispiece of the code, this paper includes a blue burgee, named Disregard Motions, and a yellow triangle called Convoy. There are likewise, in an inset, *Triangular Flags to be supplied to Admirals Ships*, on a smaller scale (for want of space on the sheet). These are the six distinguishing flags for the Starboard and Larboard Divisions, the Van, Centre and Rear Squadrons, Frigates and Detachments, according to the usual designs. The first three have 'tongues', similar to flag H (Fig. 3).

In another inset, the following is written:

Note. As it is impossible to make the Tacks of the Flags, &c. always exactly the prescribed dimensions, in consequence of the Buntin shrinking more or less, it should be a rule rather to make the Flags, &c. a little broader in the Tack than narrower, by inserting a whole breadth instead of cutting it. Great care must be taken in sewing the seams not to pucker the Buntin.

ITEM NO. 42

Signal Flags for Tenders and other small vessels.

Gentlemen Admiralty Office 13 April 1816

It being our intention to establish a Code of Signals for the use of Tenders & other small Vessels, We send you herewith, a Table of the Flags which will be required therein, and We hereby desire and direct you to cause a sufficient number of Flags of those patterns to be prepared, of a proper size for such Vessels, which when ready are to be sent to the Commissioners at Portsmouth, Plymouth, & Sheerness, to be by them delivered to the Admirals commanding at those ports, as they may be required for issues to the several Revenue Cruizers, placed under their orders.

We are your affectionate Friends

J. S. Yorke

Geo. Hope

G. Warrender

Navy Board

(*Enclosure, minuted*) N.B. Oct. 1816. The Colours made in conformity to this Order, and the Board's Letter to the Commissioners at the above mentioned Yards, have been made of the dimensions as the Signal Colours for Sloops.

Signal Flags for Tenders and Small Vessels to be employed as Revenue Cruizers

1 red and white quarterly
2 blue pierced white
3 white, blue border, red centre
4 blue, white, red, *horiz:*
5 white

Pendants
Answering — white, red fly
Rendezvous — six stripes white and black, *vert:*
Compass — white, red ball / red, white ball

ITEM NO. 47

Honorable Sirs, Portsmouth Yard 20th Decr 1810

In obedience to your directions by Warrant of the 16th Instant you will please to receive a drawing of the three additional Flags lately ordered to be supplied to Revenue Cruizers and others commanded by Lieutenants

We are, Honorable Sirs, your most obedient humble servants

J. PARK (*Master Attendant*) JN. ALCOTT (*Storekeeper*) R. L. MOSSE (*Clerk of Survey*)

Honorable Navy Board

The flags depicted are, Union Flag, red with white cross and white with narrow red border

ITEM NO. 60

Additional Flags for Packets

Plover	Cornet, white over red	Packet Flag and part of the Number on the List of the Navy
	Triangle, blue, white, red, *horiz:*	Required in addition to the Signal Flags allowed to Vessels commanded by Lieutenants to complete her Number on the Navy List
Cygnet	Rect: yellow over blue / Cornet, white over red	(*same as above*)
Kingsfisher	Rect: red, white cross	Packet Flag not forming any part of her Number on the Navy List
	Red, white, blue, *vert:* / Blue, white, red, *horiz:*	Required in addition... (*as above*)

Each Packet to have a Yellow Flag for use when they may be subject to Quarantine.

(*Minuted*) Received in Letter from Captain King dated 18 February 1824. Authorized per letter 28 February 1824.

ITEMS NOS. 61 TO 64

These are all to do with the important 1827 revision of the signal books, and can conveniently be taken together. Item No. 61 is noted: 'Recd with Mr Barrow's Letter 26 Decr 1826'. There are three columns of coloured flags.

(i) *Flags Triangles and Pendants required for the New Code*

White and red quarterly
Blue, white, red, *vert.*
Yellow, blue, *vert.*
Blue, white, red, *horiz.*
Yellow, black border top and bottom

6 White, blue cross
7 Nine yellow and blue checks
8 White over blue, *diagonal*
9 White, red border
0 Pilot Jack

Distinguishing Pendants

Red, white, blue, *vert.*
Red, white, blue, *horiz.*
White, red cross
Black over white
Six vert. white and red stripes

6 White, two black crosses
7 Yellow, blue, yellow, *vert.*
8 Red
9 White, red ball

(*Alphabetical*)

Blue, yellow saltire
Blue peter
Nine red and white checks
Yellow, red, yellow, *horiz.*
Yellow over blue
White, five black crosses
Yellow triangle
White, red saltire
White
Five horiz. stripes blue and white
Triangle, red with yellow tongue

M Triangle, yellow with blue tongue
N Triangle, white with red tongue
O Red triangle
P Blue triangle
Q Red, white cross
R Triangle, white, red fly
S Triangle, blue, yellow fly
T Red over white
V Blue, white, blue, *vert.*
Y Yellow over red, *diagonal*

(ii) *Flags &c. in the present Code, no longer necessary*

These are Popham's 1816 series, as follows:

3, 8, A to K, blue burgee ('Admiral's Cornet'), and pendants N, O, 7, 8, 9.

(iii) *Flags &c. to be made in lieu of others*

Those in column (i) as follows:

2, 3, 5, 7, 8, nought, A, C, D, H, T, V, Y, and pendant 8.
and 2 are marked: 'only necessary to shift the Tack and Tabling'.
It will be seen that the controversial 'No. 4 Flag at Trafalgar', red and white quarterly, has been definitely reversed, and made white and red quarterly.

Item No. 62, is a reshuffle of the pieces in (i) above.

5 becomes 7
7 becomes D (scratched out and marked 'altered, see the next drawing')
C becomes white triangle with red border
D becomes L
E becomes K
G becomes N
H becomes Q
I becomes H
K becomes yellow and black quarterly
L becomes white with blue border and red centre
N becomes white over red, diagonal (scratched out and marked 'altered, see the next drawin
Q becomes yellow with black ball
Y becomes yellow

Answering, Numeral and Interrogative pendants, as usual. And 'Convoy', white triangle w red border.

It may be noticed that the three new designs for K, Q and Y are those of the then recen authorized Quarantine flags of the Act of Parliament, George IV, 1825, relating to the 'P formance of Quarantine', which remained in the International Code of Signals as the th quarantine flags until its revision in 1931.

Item No. 63 is minuted, 'Recd in Mr Barrows Lr 7 Feby 1827'. There are two colum entitled 'Numeral Flags' and 'Vocabulary Flags' containing the same designs as item No. except that numeral 7 is now yellow over red, diagonal, and N has acquired the startling n design, yellow and blue vertical with a white fly equal to half the flag. It is marked 'Intended to as described, see annexed Drawing'. Item No. 64 is minuted, 'Recd with Mr Barrow's Lr 22 ju 1827'. The drawing of the flag N in the preceding item is marked, 'This Flag is no longer requi for the Signals', and a new design is drawn, half yellow over blue, marked 'Subd for yell blue, white'.

(*Minuted*) Letter from Admy 7 Decr 1827, sending a Drawing of th new Flags as they refer to the 1st or 2d Volume of the Code in order that th supply of Flags to Vessels commanded by Lieutenants may be regulat accordingly. Orders given to the several Yards on the 10 Decr 1827. S Drawing in a Frame in the Committee Room.

ITEM NO. 65

Recd with Admy Letter 6 Nov., 1827.

October 1827. A Sketch showing the alteration made in the Shape the Pendants for the new Signals, at the suggestion of Rear-Admiral S Thomas Hardy.

Sir Thomas Hardy's	Pendants now in use
6 ft. 9 in. : 22 feet : 2 ft. 3 in.	6 ft. 0 in. : 24 feet
5 ft. 9 in. : 20 feet : 1 ft. 6 in.	5 ft. 0 in. : 22 feet

This paper is of importance as being some evidence in the controversy about the date of t blunt-ended pendants superseding the pointed pendants in the Royal Navy. No doubt Admi Hardy's suggestion was followed as the dimensions of the largest signal pendant in the Navy to-d are almost identical, the only difference being 2 ft. at the end instead of 2 ft. 3 in.

NOTES

GALLEYS

.G.C.L., on p. 243 of the *M.M.* July 1951, makes the statement that after about 1420 in England and France 'the use of galleys of any kind fell out of fashion'. We have had quite a few notes in recent issues of the *Journal* about the survival of galley warfare (e.g. July 1949, p. 250, anuary 1950, p. 91); and in *The American Sailing Navy*, by Chapelle, in the most interesting ection entitled 'The Gunboat Navy', a great deal more has been put on record about the design nd use of galleys, not only long after the fifteenth century, but long after even the great galley attles between Russians and Swedes in the Baltic in the eighteenth century. This, however, eeds to be emphasized, that the French at least attached great importance to galley warfare lmost until the suppression of the 'corps des galères' by an edict of Minister of Marine Maurepas n 1748. When Colbert became responsible for the French Navy in 1662, there were six galleys n service, but by 1680 there were thirty. Tourville, the victor of Beachy Head in July 1690, ad had his earliest training in the galleys of the Knights of St John in the Mediterranean, and is biographer, La Varende, believes that it was a reaction to the hurly-burly of galley tactics vhich made him such a profound student and exponent of the art of fighting in line-of-battle hat had been developing with de Ruyter, Duquesne and others. Of Beachy Head itself, the eading French naval historian remarks, rightly in my opinion, 'par une véritable fatalité, les alères avaient été contraintes par le mauvais temps d'aller chercher un refuge à Camaret', and if hey had been present, as Tourville intended they were to be, the English defeat off Beachy Head would very probably have been turned into a decisive disaster.

In the years after Beachy Head the galleys became the last home of many unfortunate French 'rotestants, rounded up after their refusal to abjure their views, and forced to become oarsmen, vida de galera, déla Dios a quién la quiera', as the old Spanish proverb grimly had it. The alley officers, in contrast to the wretched slaves at the oars, were an exclusive caste, separate :om the rest of the officers of the royal navy of France, and in their own opinion far more nportant. Their caste-spirit, and the irritation it aroused, is one of the aspects of feudalism in ne French navy of the eighteenth century that should not be forgotten in seeking explanations or the frequent defeats by the British of splendidly built and gallantly manned French fleets.

Galleys could be 'mass-produced' in an astonishingly short space of time, but the standard 'rench galley was magnificently decorated. The most famous perhaps was *La Réale* (1690–1715), large contemporary model of which is one of the show-pieces of the splendid Musée de Marine n the Palais de Chaillot, Paris. The artist responsible for her beautiful ornamentation was the elebrated Puget.

It was, incidentally, study of galley tactics which led Admiral Jurien de la Gravière and the 'jeune cole' in the French navy of the later nineteenth century to propound the 'poussière navale' heory, which the last war perhaps proved less discredited than Fisher and others once believed.

J. E. DE COURCY IRELAND

CAPTAIN EUGÈNE CACHEMAILLE

n view of the references to the above in the *M.M.*, Vols. XXVII, XXVIII and XXIX, his monumental nscription in the church of Sark, Channel Islands, may be of interest: 'In memory of/Eugène Grut Victor Cachemaille,/second son of the/Rev. J. L. V. Cachemaille,/Vicar of Sark./Born anuary 14th, 1840/and lost at sea in command of the ARIEL/which left London for Sydney 1 February, 1872,/and was heard of no more./He was not, for God took him.'

The *Ariel* was the clipper which took part in the Great Tea Race of 1866. J. W. D. P.

BLAKE OF LISBON

In his article on Blake and the Brazil Fleets in the *M.M.* for July 1950, Professor Boxer sugge (p. 223) that the second sortie by Rupert and his allies from the Tagus 'did not, in fact, ta place till some days later' than 7/17 September. It seems to me that his references to the cor spondence of the King of Portugal fail to prove anything of the sort; all they show is th although it was intended that the sortie should take place on the 4th (N.S.), the allies were s in harbour on the 11th, six days before the date I adopted as the most probable. As for the lett of 10/20 September implying that Blake was not then off the river mouth, this may just as ea have been written after the repulse of the second sortie and before the third, which probab took place on the 16/26th, when Blake was on his way to Cadiz with the prizes taken on t 14/24th.

R. C. ANDERS

THE PORTRAIT OF THE *ANNE ROYAL*

In the *M.M.* for April 1951 Dr Parkes reproduced Visscher's print of the 'Arca Rale' and argu that it was more probably a portrait of the *Anne Royal* of 1608, the *Ark Royal* rebuilt. It mu however, be noted that the ship is extremely closely related to that purporting to represent t *Prince Royal* in a contemporary print of the same incident as that depicted in Vroom's pain from which Dr Parkes took the *Repulse* and *Red Lion*, the arrival of the Elector Palatine and H bride at Flushing in 1613. This supposed portrait of the *Prince Royal* was reproduced by m the *M.M.* in December 1920 and in my book on seventeenth-century rigging in 1927.

It can hardly be disputed that the two ships are too much alike to be considered as independe productions. Either one was copied from the other or they are both taken from a comm original, and if the former is the case, there seems little doubt that Visscher was the copy Certainly his ship is the less carefully drawn; for instance the main mizzen, which, as Dr Park mentions, has the two lifts of a square sail, has at the same time the single two-part shee a lateen; while the main-topsail brace ends in mid air and the mizzen lift of the 1613 print h become a single rope leading to the main yard-arm from nowhere in particular.

Of course it is possible that both prints are more or less like the *Anne Royal*, though it seem strange that the artist of 1613 should have drawn her where the *Prince* ought to be. I have nev seen the whole print, but can remember that I asked for a photograph of the principal ship in and have no reason to doubt that this is what I was given. It would be interesting to kno whether the print shows the vice-admiral's ship clearly, for she was the *Anne Royal*; this we kno from the Autobiography of Phineas Pett. The large flag at the fore in Dr Parkes's *Repulse* mu be an error on Vroom's part.

The question of dates is important. The *Anne Royal* was launched in September 1608 and t visit to Flushing took place in April 1613. The print showing this was described in the fi Report of the Scheepvaart Museum as 'contemporary', whereas Dr Parkes puts Visscher prints about 1630. On this matter and that mentioned in the last paragraph perhaps one of o Dutch readers may be able to help.

R. C. ANDERS

THE *BUCKINGHAM*

Since I wrote the review of the Annual Dog Watch No. 8, which appeared in the July 19 issue, I have received a letter from Sir Ernest Royden, Bt., in which he informs me that t four-masted barque *Buckingham* was 'launched by a Mrs White of Oldham, who cut the ro and Miss Kennedy who broke the bottle against the bows'. (See *Liverpool Mercury*, 14 Aug 1888.)

B. LA

H.M.S. *ANGLIA*

I was very interested to read Commander Fardell's letter in the July 1951 issue of the *M.* on the subject of 'Hands to dance and skylark' but for a different reason. He quoted from a bo called *Reminiscences of a Midshipman* serving in H.M.S. *Anglia* in 1852 on the Mediterran Station.

Early in the present century Mr Walter Wood published a book called *The Battleship* in which several pages are devoted to a very full description of a 90-gun ship, the *Anglia*, and it always puzzled me as to where he discovered the description of a ship which never existed in Admiralty records. The source is now revealed. In the passage quoted the captain's name is given as Johanspierre, which we can anglicize without difficulty into Johnstone. Working on the same principle we can substitute *Albion* for *Anglia*.

Upon consulting my records I find that the 90-gun *Albion* was in fact on the Mediterranean station in 1852 and I have little doubt that, had I the time to visit the Admiralty Library, I would find that the captain's name, prior to July 1852, was Johnstone.

It always strikes me as a pity when authentic records are marred by anonymity of ships or people and only a little less so when disguised by pseudonyms. R. H. MANDLEY

QUEEN VICTORIA'S FUNERAL

I refer to the Note on this subject in the *M.M.* for July 1951. After the old-fashioned short jacket with brass buttons was done away with, a serge-lined monkey coat of pilot cloth (slightly longer than the officers' monkey-jacket of to-day, having no vents at the back, and with six plain black buttons) was worn by ratings. I remember this rig in 1906. Can it have been the 'great coat' for ratings in 1901? C. E. K.-C.

MARITIME MUSEUMS OF THE NETHERLANDS

In the article on 'Maritime Museums of the Netherlands' by Mr H. Philip Spratt in the *M.M.* July 1950, I am credited (if I may say so), on p. 235, with a statement purporting that a model of a Dutch man-of-war, dated about 1780, existing in the Scheepvaart Museum of Antwerp, resembles the vessels of the former Ostend Co. As that company operated effectively from 1722 to 1727, such a statement would seem to have no foundation.

The model has a square tuck. This fact proves that the date of $\pm$ 1780 attributed to it is wrong, as at that time Dutch men-of-war were built with a round tuck.

The following additional particulars are to be noticed: the quarter gallery, which is of the 'half-bottle' type; the special 'horseshoe' stern with six windows on the upper-deck and four in the half-deck (the model seems to have six lights, but the first and sixth are painted dummies) and the streamer between the two rows of windows.

Dr R. C. Anderson contributed in the *M.M.*, April 1932, pp. 161–7, an interesting and useful article on a series of models of Dutch Indiamen and similar ships embodying the above-named particulars, representative of a very special style, which flourished approximately from 1716 to 1725. This period fits in well with that of the mercantile expeditions from Ostend to Arabia, Bengal and China.

Of the different ships used in those adventures, a number were of Dutch origin. As the Antwerp model, besides the mentioned particulars, shows above the helm port the bicephalous eagle of the flag of the General Imperial India Company, I feel convinced that there are reasons to suppose that it may represent one of the company's ships of Dutch build.

Other parts of the model show hybrid characteristics, such as: side gangways; a scroll-head and head boards; rigging of the middle of last century, and the 'Nelson fashion' painting of the sides.

If anything, their existence proves, I think, once more how a model may be spoilt by incompetent restorers. C. BUYSSENS

THE LAST FIGHT OF THE *REVENGE*

Two Notes in the *M.M.* for October 1951 find fault with my statement that Tenison's *Elizabethan England* 'is not easily available to the ordinary reader'. I must point out that Mr Barrington, the writer of the article in the previous October, was evidently of the same opinion, since he gave the fact that Bertendona's despatch 'is published and translated only in a work issued to subscribers and not sent to the Press' as his reason for writing.

The information as to the public libraries in which *Elizabethan England* can be consulte impressive in its way, but I am one of those who consider that a single book in one's own libr is worth ten anywhere else, and from that point of view my statement was amply justified financial grounds alone. In any case, the point I intended to make was that Mr Barrington given us so little of the 'new evidence' mentioned in his sub-title; I had not realized that he merely telling us that this evidence was to be found in print elsewhere. Neither Note deals w this point, nor do they attempt to justify the statement that Grenville was actually caugh anchor. R. C. ANDER

GADS

Mr Carr Laughton's most interesting note on this subject (*M.M.*, July 1951) prompts m quote yet another passage from the Περὶ θαλασσομαχίας of the Emperor Leon VI.[1] T work was almost certainly composed during the opening years of the tenth century and is ba in the main on the evidence of eye-witnesses.[2] The relevant portion of the text may be rende as follows:

'But in the largest class of Dromon, what are known as "wooden castles" should be moun περὶ τὸ μέσον τοῦ καταρτίου. These also should be provided with bulwarks, from beh which men can rain down into the waist of the enemy ship querns and iron weights in the fo sword-shaped castings, so as either to sink her outright or kill those underneath....'[3]

I leave untranslated the final phrase of the first sentence because it is highly controversial largely irrelevant to the present issue. Construed literally, it seems to imply a fighting plat mounted half-way up the mast.[4] In demotic, however, it is perhaps an idiom for 'at the maint The present interest of the passage is that it shows that gads were in use in the Levant more 500 years before their introduction into the Royal Navy. They represent, of course, a modific of the 'dolphins' employed by the Syracusans in 413 B.C.[6] I would only comment on the assista Mr Laughton's note has been to me in understanding the exact nature of the device. Pig iron flattened at one end would in fact be ξιφοειδής or 'sword-shaped'. There can be li doubt but that the Byzantine gads were of approximately the same weight as their En counterparts, considerably lighter, that is, than the use of terms such as βαρύς and μαζίον led me to suspect. R. H

AN EARLY FORM OF SEA-ANCHOR

The treatise Περὶ θαλασσομαχίας of the emperor Leon VI was probably composed *c.* 905. appeared as an appendix, perhaps the second, to the sixteen books of the Τακτικά proper. Dur the last six or seven years of the emperor's life, material was collected diligently for a new editi For some reason, presumably not unconnected with Leon's failing health, this project abandoned as too ambitious. Instead, the three appendices were raised to the status of books, a the number hastily brought up to a round score by the addition of a twentieth incorporating miscellaneous information already assembled. Of editing there was none, and entry follows en in precisely the order that each was brought to the emperor's favourable notice.

Early in the eleventh century, it would seem, an anonymous Byzantine student of naval warf included the book Περὶ θαλασσομαχίας in a corpus of nautical lore.[7] He also ran his eye o the book of miscellanea, and transcribed some, but by no means all, of the entries relevant to

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1 Ed. A. Dain, *Naumachica*, Paris, 1943.

2 Ed. cit. c. 1, 1, 2–4.

3 *Ibid.* c. 7, 11, 1–5.

4 Compare my attempts to resolve the difficulties in my paper 'The Warships of the La Roman Navy', *J.R.S.* XXXVIII (1948), p. 51, n. 33.

5 I am grateful to Prof. R. J. H. Jenkins for drawing my attention to a demotic poem poss of Mardaite origin.

6 *Thucydides*, VII, 41.

7 Cf. A. Dain, *Naumachica*, pp. 35, 36 (Paris, 1943).

bject.[1] One item, sandwiched between recommendations on the value of sorties generally and night marches in desert warfare, may be rendered as follows:

'I will tell you yet another naval stratagem. It may well chance that in the course of operations ou will be preparing for a raid on a sandy coast lacking harbours. You should fill a large number sacks with sand, and attach them with ropes to your vessels, shipping them in the same way that ou would an anchor. Having thus made what are known as "deep-sea harbours", you can readily p in under cover of darkness and make your desired descent.'[2]

As it stands, the passage may seem to stand in need of a little clarification. The essence of the anoeuvre was that the raiding squadron should make its landfall late in the evening, if possible observed. Instead of having to run for the nearest friendly harbour, or at best standing for the en sea, the ships could ride out the hours of darkness in comparative security.[3] At first light, they d only to weigh and stand inshore, and by dawn they would be nosing up the chosen beach like odern landing-craft. The landing-parties, which might include cavalry, went ashore down special mps.[4] A sandy beach was essential for the success of the operation inasmuch as Byzantine war- ips were too lightly constructed to take a rocky bottom.[5] In passing we may note that the ships ere provided with windlasses quite capable of handling weights of several tons.[6] Raids of the pe suggested were a feature of Byzantine naval operations in the tenth century, and Arab writers efully pay tribute to their depredations.[7] In Syria, Palestine and Egypt alike, the victims were often as not a predominantly Christian peasantry who would have been only too glad to defend emselves had their Moslem masters allowed them to carry arms. The Latin chronicler Bishop udprand of Cremona records one such unopposed landing which degenerated into an irre- onsible if not altogether light-hearted lion hunt.[8] A further measure of surprise was sometimes fected by landing troops from captured warships, or even by building vessels of characteristically ab appearance.[9]

Just how effective were these sea-anchors is a little difficult to judge. Byzantine warships were ng and narrow and of very shallow draught, and it is quite probable that the surface-area of the nd-bags was sufficient appreciably to minimize an inevitable tendency to drift to leeward. ranted fair weather and light winds, there would seem to be no valid reason why the use of this vice should not have enabled a squadron to remain in the offing for a number of hours. In ul weather, on the other hand, such sea-anchors would have proved something of a liability. It perhaps significant that they are not mentioned in the reports from the Theme of the Kibyr- aiotai that are our principal sources for the practical seamanship of the period.[10] At present am engaged in an attempt to discover the origin of the device which I believe to have been rly generally employed in the tenth century, and I would be most grateful to readers who can duce similar or parallel instances from an earlier period. R. H. D.

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1 Paragraphs omitted include *MPG*, cvii, col. 1052, cap. 144 (use of decoy ships) and *ibid.* l. 1072, cap. 211 (conduct of naval operations in Kypriot waters).

2 Dain, *op. cit.* p. 37, cap. 1 (=*MPG*, cvii, col. 1068, cap. 196).

3 It was still customary for crews of warships to go ashore for the night, cf. passages such as on, Περὶ θαλ, ed. Dain, c. 33.

4 Konst. Porph. *De ceremoniis*, ed. Bonn, p. 658; Leon Diakonos, ed. cit. p. 7.

5 Even the ships-of-the-line were light enough to be manhandled over the Isthmus of Korinth, onst. Porph. *Vita Basili*, ed. cit. p. 300.

6 Konst. Porph. *De ceremoniis*, p. 675.

7 Cf. Mas'udi's bitter comment 'The boot is now on the other leg and it is the Byzantines o come and raid us.' Earlier in the century the poet Yahia was carried off from Ascalon by quadron based on Adalia.

8 *Antapodosis*, iii, xxv.

9 *MPG*, cvii, col. 1052, cap. 144.

0 English translation, *M.M.* January 1951, pp. 5–16.

QUERIES

1. Davit. We should be glad to learn the origin of the word *davit*. We have heard that i derived from Spanish *gaviete*, and French *davier*, but should be glad of some authoritat confirmation. SØFARTENS BIBLIO

2. The bitter end. The successful way in which the case of *nipper* has been dealt with the July 1951 *M.M.* encourages me to ask whether there is any evidence that 'the bitter en for the inboard end of the cable, has ever been used by seamen? This definition (which I unable to check) I have seen in Webster's Dictionary, and I find it hard to believe that this e has been used outside dictionaries and such like. S. H. S. MO

3. Cruiser. At what approximate date was the word *cruiser* first applied to ships of w In a book, dated 1806 and written by William Robertson, D.D. (of Edinburgh University a member of the Royal Academy of History at Madrid), when recounting the plundering camp carried on by the pirate Barbarossa in 1535, we learn that: 'Daily complaints of the outra committted by his *cruizers* were brought to the Emperor by his subjects both in Spain and It There may, of course, be many very much earlier references to warships as cruisers.

W. ADAM WOODW

4. French naval transports *EUROPÉEN*, *WESER* and *JAPON*. In December 1859, French Navy acquired in Great Britain three iron screw passenger ships and converted them i naval transports under the names of *Européen*, *Weser* and *Japon*. The first two were sister ship 3017 tons and 1200 h.p. The *Japon* was slightly larger: 3280 tons and 1200 h.p. She w barque-rigged while the other two were ship-rigged.

It seems that the *Weser* retained her British name and that the other two were first nam *European* and *Japan*. Any information on this point would be welcomed, also particulars of building yards, dates of launch and names of owners for whom they were originally built.

M. AD

5. James Norton. Can somebody please provide particulars of James Norton, captain a ship and later commander of a squadron in the Brazilian Navy in the Argentino-Brazilian w of 1826, and the only officer in the Imperial Brazilian Navy, as it then was, who was apparen a match for the celebrated Admiral Brown, my fellow-countryman, the 'father' of the Argent navy? J. DE COURCY IRELA

6. Russian galleys. R. H. D. in a Note on p. 246 of the *M.M.* July 1951 makes the v interesting statement that the Russian galleys which raided Byzantine territory across the Bl Sea in the ninth and tenth centuries were not 'hollowed out of single trees', as has long b believed, and as was asserted, for example, by F. T. Jane in 'The Imperial Russian Nav p. 29f., by the authors of the official *History of the U.S.S.R.*, Part 1, p. 51, and by Ma Mitchell in *The Maritime History of Russia*, p. 50. On the face of it, R. H. D.'s statement ab these μονόξυλα seems likely to be correct. I hope he will supply us with details, and, if possi a diagram, in a forthcoming issue of the *M.M.* J. DE C

7. Admiral Lawson. In his review on p. 251 of the *M.M.* July 1951, Mr Robinson qu Admiral Lawson: 'it is not for us to meddle with politics but to stop foreigners from fooling The remark is usually attributed to Robert Blake, and has always seemed to me to be singul out of character. Who was Admiral Lawson, and when did he make the remark?

J. DE C

ANSWERS

88. (1911). SHANTY. This query asked for information on the source of the word and the date of its first use for a working song afloat. The *N.E.D.*'s oldest example is 1869, but Captain W. B. Whall recalled its use from his first going to sea in 1861. In Vol. 9 of the *M.M.*, L. G. Carr Laughton traced the development of shantying to the Gulf of Mexico cotton trade in the period 1830–60, but was forced to accept rather unconvincing connexions with shanty in the sense of a crudely built house or tavern as the origin of the term.

One of the arguments against deriving shanty as a song from the French *chanter* is the change in pronunciation; another is the difficulty of explaining how a French word could have crossed the Channel as late as 1830. However, shanty as a house is from the French *chantier* (timber-yard), via the wood-choppers' cabins in French-Canadian logging camps, so there need be no doubts about French *ch-* becoming English *sh-*. Mencken, in *The American Language*, derives shanty as song from French *chanter* but calls it 'not American', and the word is not in the *Dictionary of American English.*

The two principal Gulf cotton ports from 1830 to 1860 were New Orleans and Mobile, both settled by the French; both still celebrate Mardi Gras. I have not found any accounts of loading at New Orleans in this period, but there are two of Mobile that illustrate clearly both the source of the term and the circumstances of its transfer to a working song afloat. The first is from *Twenty Years at Sea*, by F. S. Hill (1893), describing a visit to Mobile in 1844:

'The cotton. . . was now to be forced into the ship, in the process of stowing by the stevedores, by very powerful jackscrews, each operated by a gang of four men, one of them the "shantier", as he was called, from the French word *chanteur*, a vocalist. This man's sole duty was to lead in the rude songs, largely improvised, to the music of which his companions screwed the bales into their places. . . .

'A really good shantier received larger pay than the other men in the gang, although his work was much less laborious. Their songs, which always had a lively refrain or chorus, were largely what are now called topical, and often not particularly chaste.'

The second account is by Charles Nordhoff in *The Merchant Vessel* (1855) of loading at Mobile about 1848:

'Five hands compose a *gang*, four to work the screws, and one to do the headwork. . . . The foreman begins the song, and at the end of every two lines the screw is forced to make one revolution, thus gaining perhaps two inches. Singing, or *chanting*, as it is called, is an invariable accompaniment to working in cotton, and many of the screw-gangs have an endless collection of songs, rough and uncouth, both in words and melody, but answering well the purposes of making all pull together, and enlivening the heavy toil. The foreman is the *chanty-man*, who sings the song, the gang only joining in the chorus, which comes in at the end of every line, and at the end of which again comes the pull at the screw handles. One song generally suffices to bring home the crew, when a new set is got upon the bale, and a fresh song is commenced.

'The *chants*, as may be supposed, have more rhyme than reason in them. The tunes are generally plaintive and monotonous, as are most of the capstan tunes of sailors. . . . The men who yearly resort to Mobile Bay to screw cotton are, as may be imagined, a rough set. They are mostly English and Irish sailors, who, leaving their vessels here, remain until they have saved a hundred or two dollars, then ship for Liverpool, London, or whatever port may be their favourite, there to spree it all away, and return to work out another supply.'

Thus, in 1844 Hill recognized *shantier* as a French word; in 1848 Nordhoff found the term as chanty-man; neither used *shanty* for the song itself, although Nordhoff commented on the similarity of the screw-gang songs to the capstan songs afloat. By 1861 the shanty-man's song had become the shanty. The words shanty-man and shanty are certainly American in origin, and belong in the *Dictionary of American English.*

JOHN LYMAN

22. (1950). THE *SERINGAPATAM*. The vessel of which I gave details was the Blackwaller that name and not the smaller and later vessel built at Greenock in 1849. Mr Lowless has give as far as I know, correct details of the later vessel, and I am able to inform him that Capt L. Bindon was master in 1859. At that time *Lloyd's Register* shows her as registered at Brist but, as I pointed out, there were frequent errors in this source at that time, and the painti may be correct. ROBERT CRA

16. (1951). SIGNAL FOR 'GENERAL CHASE'. At the opening of the battle of Heligoland Bi on 28 August 1914, Commodore Tyrwhitt ordered the 4th Division of his destroyers (*Lau Liberty*, *Lysander* and *Laertes*) 'to chase' a German destroyer that had been sighted just be 7 a.m. Shortly after, more German destroyers were seen, which the 4th Division also cha This was not, however, 'General Chase'.

At the opening of the battle of the Falkland Islands on 8 December 1914, Admiral Stur made the signal for a 'General Chase' soon after leaving harbour at the Falkland Islands at ab 10 a.m. to the *Invincible* (Flag), *Inflexible*, *Glasgow*, *Kent*, *Carnarvon* and *Cornwall*. The *Bri* was still in harbour, having opened up both engines, and did not take part in the chase. T official history of the War, *Naval Operations*, says 'The moment recalls many others of famo memory when the same exhilarating signal was made; it has been the prelude of some of the n decisive successes in our records, but conditions had changed, and it was soon found that it co not be strictly followed. In the effort the battle-cruisers had made to work up rapidly to fu speed, they were belching forth such volumes of dense smoke that in half an hour the Adm found it necessary to do something to reduce the trouble... the Admiral thereupon (10.50 a.m signalled to the *Inflexible* that he was easing speed to 24 knots to lessen the smoke.... Th freedom of "general chase" was thus already broken into.' *Naval Operations*, Vol. I, p. 417.

The great exponent of this famous signal appears to have been Admiral Hawke in the o days. He used this signal at the battle of Ushant in 1747, at the battle off the Island of Aix 1758 and again at the famous battle of Quiberon in 1759. HAROLD P. WIGGI

20. (1951). OLD FISHING CRAFT. The *Clulow*, not *Clulov*, was built at Bideford in 1884 f the Missions to Deep Sea Fishermen, and was registered in the name of Ebenezer J. Mathe founder and director. Her name was then *Edward Auriol*, but by 1887 it had been changed *Clulow*. EDGAR J. MARS

The *Kelflavik*, ex *Pinta*, was built at Goole in 1884, and was owned and registered at Hu and as her owners in 1891 were the Hull Steam Fishery and Ice Co. she was presumably a Nort Sea fishing vessel. H. O. I

The *Bjarn Olafsson*, ex *Clulow* (not *Clulov*), was launched as the *Edward Auriol*. Restaric specializing in medium-sized fishing craft types of 60–70 tons, built a number of craft in batche His three for the Missions to Deep Sea Fishermen were the *Cholmondeley* (1883), *Edward Auri* (1884) and *Edward Birkbeck* (1885), while in passing it is interesting to note that the yac *Bridesmaid* (1882), at times also named *Le Rêve* and *Dream*, was later owned by Dr Barnad Homes (Watts Naval School at Dereham, Norfolk). The eight fishing craft for one compan mentioned by I. Rogers, are difficult to trace unless the North Sea Trawling Company an Hewetts were branches of the same concern. For the trawling company he built the *Sparkli Nellie*, *Greenwood Tree*, *Johnny Toole*, *Maud of Scotland* and *Fair Fanny* in the years 1885– For Hewetts he built the *Pilot* (1880) and probably, the *Violet*, *Industry*, *Sincerity* (all 1879 *Fidelity* (1881), *Clyde* (1882) and *Winifred* (1885). Several of his other fishing ketches, bu for owners at Gorleston, Yarmouth and London, were also owned by Hewetts at various time these craft apparently changed hands frequently.

My own Bideford shipbuilding list, more than twice as long as the published one, shows th following numbers of craft from the Restarick yard: yachts, 3; mission craft, 3; fishing craft,

(plus 15 probables); trading craft, 4 (including a barquentine of 200 tons). Best known of Restarick's craft in recent years are, or were, the trading ketches *Bessie Clark* (1881) and *Carbid* (1878), the *Carbid* having been built as the fishing ketch *Butterfly* and later lengthened at Gorleston, reverting either then or later to coastal trading. It would certainly be interesting to record the lines and data of one or more of Restarick's fishing craft, which probably introduced some West Country ideas to the East Anglian ports. Perhaps the Missions have some records in this connexion?

GRAHAME FARR

19. (1951). The first aircraft carrier. The first aircraft carrier appears to have been the old cruiser *Hermes*, which was commissioned in May 1913 for experimental flying duties, and took part in the manœuvres of that year. On the outbreak of war she was fitted with a flying-off platform forward and a canvas hangar aft, and carried three seaplanes. She took part in operations against the German Army in the Dunkirk area in September 1914, and was torpedoed and sunk by *U 27* off Calais on 31 October, 1914.

The *Ark Royal* was bought on the stocks in 1914 but was not commissioned until December 1914. As her seaplanes were also hoisted in and out for flying, there seems to be no reason why she should be considered the first aircraft carrier in preference to the *Hermes* and the three converted cross-channel packets *Engadine*, *Riviera* and *Empress*, all of which were in service before the *Ark Royal*, and worked their aircraft in the same way. The three packets originally had canvas hangars aft, and little structural alteration, but were later given permanent hangars.

Other early aircraft carriers were: the *Campania*, bought November 1914, commissioned April 1915; *Ben-my-Chree*, chartered January 1915; *Vindex*, bought(?) 1915(?); *Manxman*, bought 1916; *Argus*, bought 1916 while building, commissioned 1918; *Nairana*, bought 1917 (while building ?); *Pegasus*, bought 1917 while building; *Furious*, design altered while building, 1917; *Eagle*, altered while building, 1917, commissioned 1920; *Hermes*, ordered 1917, completed 1923, the first ship designed as an aircraft carrier; *Vindictive*, design altered while building, 1918.

In addition to the above, there were two ex-enemy steamers, the *Ann Rickmers* and *Rabenfels*, which were used as seaplane carriers, and a number of kite balloon ships, the *Canning*, *City of Oxford*, *Manica*, *Hector* and *Menelaus*, while between 1911 and 1914, the pre-Dreadnought battleships *Africa*, *Hibernia* and *London* were each fitted with long temporary flying-off platforms from the fore-bridge to the bows, for flying-off experiments. None of these ships, however, can be classed as aircraft carriers in the accepted sense of the name.

DENNIS S. DRURY

The first recorded flight made from a ship was when Mr George Ely took off from a platform temporarily built on the forecastle of the United States light cruiser *Birmingham*. She was lying in Hampton Roads, Virginia, at the time and the date was 14 November 1910.

The first flight from a British ship, of which we have record, took place during December 1911, when Commander Samson, R.N., took off from a launching platform built onto the gun-turret of the battleship *Africa*, which was anchored off Sheerness for the experiment. Subsequently, the battleships *Hibernia* and, I believe, *London* were also fitted with launching platforms, and during the 1913 naval manœuvres, the old cruiser *Hermes* was fitted with an aeroplane hangar and launching platform.

The first vessel completed as an aircraft carrier was the old *Ark Royal*, taken over while building and completed at the start of the 1914–18 war. She subsequently served in several capacities, and was only recently broken up at Grays, Essex, whither she was towed after an abortive attempt to convert her into a mercantile vessel at Antwerp.

The first vessels to be built with a complete 'flight' deck for the flying-off and landing of aircraft were the *Argus* and *Eagle* of the Royal Navy, but both these were converted from hulls which had originally been intended for other purposes, the *Argus* as a liner, and the *Eagle* as a battleship, and the first aircraft carrier in any navy, designed as such from the outset, was, in fact, the British *Hermes*, which was launched in 1919, and was sunk during the late war.

MICHAEL CROWDY

REVIEWS

Note sur deux passages de Strabon et de Pline dont l'intérêt n'est pas seulement nautique. By Pierre Paris. Extrait du Journal Asiatique (Année 1951, pp. 13–27). Paris, 1951. No price stated.

The main thesis of this most interesting essay is the suggestion that the descriptions of Ceylon to be found in Strabo (*Geogr.* xv. i. 15) and Pliny (*Nat. Hist.* vi. 24) are in fact descriptions of the island of Sumatra. Monsieur Paris argues convincingly, moreover, how it was possible for Strabo, and after him Pliny, so to misunderstand his source. Acceptance of this theory can only increase our admiration for the ancient navigators who appear to have crossed the Indian Ocean at frequent intervals except in the season of the monsoon.

Monsieur Paris subjects to a searching analysis Strabo's obscure and possibly corrupt description of the ships in which the Indonesians crossed over to Ceylon. He decisively rejects all modern attempts to solve its problems by the supply of a dative or conjunction, and with them there goes by the board the curious belief that the ships were of all things double-ended! There is substituted the theory that the Indonesians employed twin-outriggers. Monsieur Paris makes his points with effective modesty, and shows a mastery of Hellenistic syntax. I for one, however, am not quite happy about the senses with which the terms ἐγκοίλια and μήτραι are endowed. Is it not possible that Tardieu was fumbling towards the light, and that the ships had to be wretchedly undermasted and were poor sailers because their section was triangular and not trapezoid? But it would be niggling to develop further criticisms of this sort. This stimulating study is another timely reminder of the fact that there is emerging in France a school of naval archaeologists, fully worthy of the tradition of Jal.

R. H. I.

Imago Mundi. By Captain Carl V. Sølver. Illustrated. Iver C. Weilbach and Co. Copenhagen.

In his latest and, up to the present, his most important work, *Imago Mundi*, our member, Captain Carl V. Sølver surveys the seamanship and navigation of the era of the great discoveries with the keen and critical eye of the professional seaman. As one reads one gradually comes to realize that it was no coincidence that these ventures took place when and where they did. The success and continuance of the great voyages of exploration were dependent upon factors which were operative then and which were not operative in earlier periods of the world's history. Hitherto neither the ships nor the seamanship were equal to such ventures. But in the course of the fifteenth century there had been a sudden and striking advance in shipbuilding, resulting in the construction of craft which were sufficiently seaworthy for long ocean passages. At the same time there had been a parallel advance in the science of navigation, with the development of the mariner's compass, quadrant and astrolabe.

Not the least of the merits of *Imago Mundi* is that it serves as a useful corrective to the view of the purely academic student. As a case in point might be mentioned the navigation of Christopher Columbus. The scholar, relying perhaps overmuch on Columbus's *Journal*, is inclined unduly to underrate Columbus as a navigator. The sailor, *judging principally by results*, reaches a quite different conclusion. 'Columbus's few records of celestial observations before 1504 were of the most cock-eyed description', has roundly declared one of the most eminent maritime historians of our time. Captain Sølver, however, has a good deal to say on this subject. To his way of thinking, the 'de-bunking' of Columbus as a navigator has been carried too far. He does not believe it possible for the Admiral or anyone else to have sailed to and fro across the North Atlantic relying on dead reckoning and on dead reckoning alone. Captain Sølver

himself a 'windjammer' man, points to the obvious limitations of D.R. Dead reckoning, he reminds us, will answer for relatively short passages: but hardly for long voyages over the open sea, out of sight of the land, and in all kinds of weather. In such conditions it will not be long before the mariner wholly loses his reckoning. If, on the other hand, he has some notion of his northing or southing by means of celestial observations, the position is altogether different. (Hence the importance always attached in the pre-chronometer era to the traditional three 'L's', Lead, Latitude and Look-out.) A similar view of the question was taken by Lieutenant J. W. McElroy, U.S.N.R., writing in *American Neptune*, Vol. 1 (1941): 'Just like dead reckoning shipmasters down to the present century, the Admiral sought the parallel of latitude upon which his destination was presumably located and steered along that line until he reached his objective.' Captain Sølver cites the return voyage of Columbus in the early months of 1493 as a classic example of latitude sailing. It will be remembered that the Admiral then shaped a northerly course across the Atlantic until he approached the parallel of St Vincent, after which he altered course to the eastward and steered along that parallel until he came in sight of the land.

Captain Sølver is perhaps inclined a little to underestimate what might be termed the Bristol tradition of Atlantic exploration. After all it was the successive voyages of discovery from that port, made not only in 1480 and in 1481 but also in the 1490's, that eventually culminated in John Cabot's sighting of the Newfoundland coast. It is to be regretted too that Captain Sølver does not refer more frequently and more explicitly to the sources from which he has drawn his material. But these after all are only minor defects in comparison with the solid merits of his work as a whole. *Imago Mundi* is a real and significant contribution to the history of Ocean Navigation. G. J. M.

Thames to Tahiti. By Sidney Howard.
A Gipsy of the Horn. By Rex Clements.
Rupert Hart-Davis ('The Mariners Library'). London, 1951. Illustrated. Price 9*s*. 6*d*. each.

Here are two contrasting themes: an adventurous two-man venture in a 14-ton (Thames measurement) cutter, and a circumnavigation made in the closing days of sail. Both these books which now reappear under the aegis of 'The Mariners Library' nevertheless have this in common: their reputations have been firmly established ever since their original publication in, respectively, 1933 and 1924.

The stimulus which prompted Sidney Howard to sail for Tahiti was the outcome of tragedy. By cruel accident made a widower before his fortieth year, only high adventure seemed to promise this keen amateur sailor some relief from sorrow. Giving up both job and home he bought a 38-foot cutter, the *Pacific Moon*, and with a 21-year-old sailing enthusiast as shipmate sailed for the Pacific.

There was no occasion for haste. The passage, commencing in mid-1931, was made by way of Spanish ports and Gibraltar, the Canaries, Cape Verde Islands, West Indies, Panama, the Galapagos Islands and the Marquesas, and lasted for nearly a year. John, the 21-year-old, took on 'all marlinspike seamanship and athletic feats', while the author, apart from his share of watch-keeping, acted as chief cook and bottlewasher (no mean feat under the more boisterous conditions) and tended the occasionally used and inevitably temperamental engine. Their navigation, self-taught during the passage, was remarkably successful despite certain vagaries of the chronometer, and the leisurely progress of the voyage permitted wide observation, the fruits of which are presented with some happy turns of phrase. Those acquainted with Casablanca, for instance, will concur in his verdict on that city, one which he regarded as a triumph of French colonization: 'I had the impression that Aladdin had rubbed his lamp and built a new and clean little Paris on a dreary coast.' He deplores the degeneracy of the Marquesans: 'The handful of their dejected descendants bear about as much resemblance to [the original inhabitants] as an inmate of a London poorhouse does to Caractacus.' Little that is dull is to be found in the narrative of a man to

whom the primitive cinema at Tahiti was 'the place where films go to die', or a certain dependable proprietary beverage was 'the bottled remains of some bovine wanderer of the Pampas'. One must accord him, too, even if somewhat reluctantly, a measure of admiration in refusing to be one of the hundred per cent of the visitors to Nevis who, he informs us, visit the 'Fig-tree Church' where Nelson married Mrs Nisbet.

A final chapter of data and 'lessons learned' as a result of the voyage will still, after a lapse of twenty years, repay the perusal of other intending ocean-cruisers.

A Gipsy of the Horn is the account by an apprentice of his first voyage, made in a small Scottish barque, the *Arethusa*. Out to Australia with a general cargo, across to the West Coast with coal, home to Falmouth for orders with guano, there was nothing unusual about this particular voyage which conformed to a pattern typical of its period. But there will be many with the actuality of such an experience in their background as well as countless others who have merely read about such things, who will be prepared to swear that no one has more vividly or more graphically caught the spirit of such an experience than Rex Clements succeeded in doing in this classic.

His decision to become a brassbounder was born of that ever compelling if illusory combination, the romantic urge and much reading of *Robinson Crusoe*. Those who have yielded to the same appeal and those who, resisting it, have in default found themselves ever after roving the seas of nautical literature, will experience again all the pathos attending the shattering of illusions before they have seen the *Arethusa* out of soundings: the unsavoury sea-victuals, the shocking if fecund vocabulary of the second mate, the first impressions of Captain West, massive in frame, rough, masterful, and endowed with a voice and bearing that made men 'jump like steel wires'.

There soon appeared, of course, the very real compensations; running through the Trades, 'a taste of sea life at its best'; the sight of remote lands and of strange sea creatures; shanties chorused against their proper age-old background of toil and sweat; the transformation engendered by the sense of being in due course homeward bound; the first welcome sight of the Bishop's double flash; the taste of tobacco again after weeks' dependence on a concoction of rope-yarns, coffee grounds, and the bark from a pork barrel....

All this and more, Clements has set down in phrases which are striking, crisp and clear, as pungent as the stinging salt-sea sprays which were his environment at the time: the run down Channel: 'it was wild; it was free; every moment had its zest'; the second mate, whose 'hurricane' orders hurtled in language that leapt and flared like a blue flame'. Yet in all this there obtrudes no sham sensationalism. Clements's epic is cleanly presented and far transcends the type of sea drama one occasionally encounters which, to ensure some sort of a market at all costs, is fortified by unedifying close-ups of the more sordid aspects of back-street sailortown. It is commendable that a book of this calibre should make its reappearance; that a ready appreciation awaits it, is certain.

ALAN F. DAKIN

The Irish Sword. Vol. 1, no. 2. The Sign of Three Candles, Fleet Street, Dublin. Price to Non-Members 15*s*.

This is the second number of the Journal of the Military History Society of Ireland, which was founded two years ago. An annual subscription of only ten shillings (together with some official assistance which journals in our own benighted country fail to obtain) enables the Society to produce a journal the style and quality of which make even readers of *The Mariner's Mirror* envious. True, the illustrations are not very exciting, but the notes and queries, the documents and special articles make this publication something of real value to the military historian and genealogist. Naval historians will be chiefly interested in articles dealing with combined operations. One such project is described by Mr Ryan, an attempt by Napoleon in 1811 to revive the old, and one would have thought discredited, idea of Hoche's invasion of Ireland. In the summer Napoleon thought he could spare the necessary 40,000 men. The report on the state of the country by a spy from the Irish legion was optimistic. But by the end of the year, on the eve of the invasion of Russia, the Emperor was no longer interested.

Irish military history is really an international subject. Perhaps we should not call her soldiers mercenaries in view of their extraordinary zeal to be on the wrong side in so many battles. But it is a matter of record that Irishmen often composed the best and bravest parts of English, Spanish, French and American armies. Someone ought to work out the percentage of Irish generals in the British army, from Wellington downwards; Eyre Coote, for instance, whose opponent, Lally de Tollendal, was also of Irish descent. We have all heard of the Regiment of Dillon in the French army; Dr Hayes prints a sad account of an officer in the original Irish brigade who was misguided enough to follow the fortunes of James II and the Old Pretender. The shabby way in which those faithful soldiers were treated is typical of the stupid Stuarts, who never rewarded the right people.

It was the bigoted administration of the Test Act that drove so many fine soldiers abroad. Sir Patrick Cadell tells us that the East India Company never worried about having Roman Catholic officers and so produced the foundation of the finest army the Empire has seen. Religious passions are cooler nowadays. May we soon look forward to the day when nationalistic feelings, even among the Irish, will also simmer down? A glance at a journal like this will make British military historians realize the debt we owe to the fighting Irish. C. C. L.

Manual of Seamanship, Vol. I. London: H.M.S.O. 1951. Price 8*s*. 6*d*.

A brief introduction says: 'B.R. 67(1/51). *Manual of Seamanship, Volume I*, having been approved by My Lords Commissioners of the Admiralty, is hereby promulgated for the information and guidance of all concerned.' This new work is eventually to be in three volumes, increasing in importance and erudition as it advances. Vol. I is for naval cadets and seaman boys, and if one may say so, is a pretty hearty meal for a beginner to assimilate. It is out of the question to compare this beautiful book with its official predecessors or the various seamanships of the past. It leaves them miles astern. There can be no two opinions that the best and most attractive feature of this book is the illustrations, consisting of black-and-white diagrams and drawings of many sorts, besides coloured plates of buoys and buoyage, signals and flags. It is printed clearly on good paper and well bound, and it can hardly be a paying 'business proposition' at the price charged to the public. There is no clue in the book as to its author or editor, but the name of a commander, Royal Navy, has been mentioned in this connexion in other reviews, and he is certainly to be congratulated on the lucid explanations, especially those to do with the boatswain's art. It is a pleasure to see the interesting treatment of lead and line and the taking of soundings, including the reversion to practices of former times which must be novelties in the modern navy. The leadsman now calls both 'marks' and 'deeps' with the prefix 'By the...' (mark or deep). Some of us may remember when it was the worst possible form in the navy to call '*By the* deep', but this business has always been undetermined both in the navy and the merchant service. What appears to be another reversion to former practice is the variation in the material of the marks; these are now stated to be made of leather, white duck, red bunting and blue serge.

It is a pity that the 'historical background' of Chap. XIII (Naval Communications), and some parts of Chap. XIV (Naval Ceremonial) have not been more carefully written, and one would have thought that details on these subjects could have been easily obtained, and howlers thereby avoided. Poor Lieutenant Pasco has his name misspelt, and the reference to Sir Home Popham is vague in the extreme. Lord George Murray never in fact devised any semaphore, and the major achievement of extending his line of telegraphs to Yarmouth is not mentioned. Sir Home Popham's semaphore was never lit by lanterns at night as stated in this book. It is bloomers like these that remind one of the recent famous film about Captain Hornblower. An elaborate contraption was erected to represent an Admiralty semaphore, and to enable an unnecessary message to be sent by it. The semaphore stations were not established till some ten years after the period of the film, and it is difficult to understand why a lot of expense should have been incurred to drag in something quite superfluous to the film story. The same applies to the book under review; explanations of the old telegraph are quite unnecessary in a book on modern seamanship, but if included they should at least be accurate. Much of the matter in Chap. XIV

is drawn from *King's Regulations and Admiralty Instructions*, and it seems superfluous to print all over again with unofficial embroidery. There is a paragraph on the 'Courtesy flag' used b merchant ships in foreign countries, and a dogmatic statement that this is to be the Red Ensig in an English port. The 'courtesy flag' itself is only an unofficial and unauthorized invention, an it is a pity that a book approved by the Admiralty should lend it countenance.

In 1929 there was issued the International Convention for the Safety of Life at Sea, whic contained Annex II, International Regulations for Preventing Collisions at Sea (commonly know as the 'Rules of the Road'). Although Annex II had not then been ratified (and as far as we kno has never yet been ratified) the Admiralty Manual of Seamanship of 1932 contained these revis collision regulations; it is true there was an Addendum to the Manual (undated but evidently 1934) stating that they would not come into force until six months after ratification; bu numerous copies of the Manual must have been in circulation which were not amended, or they were amended, had lost the relevant pasted-in slip. In consequence there was from 193 onwards the anomaly of one set of regulations being learnt from the Manual of Seamansh while *K.R. and A.I.* continued to contain the other full existing regulations. The new 195 Manual is the first reputable seamanship book since the original rules came into force, to leav out all reference to the Rules of the Road. Certainly there is no need to set out the entire regula tions when they can be found in *K.R. and A.I.*, but surely it would be helpful to young seafar to be provided with the old-fashioned coloured plates of 'Vessels' lights as seen by a look ou man', brought up to date. A useful card was published in 1945 entitled 'Ships' lights at a glanc but unfortunately this is based on Annex II. There is a need for something of the kind showi the existing rules for lights at sea.

A History of the Practice of Navigation. By Commander J. B. Hewson R.D., R.N.R., F.R.G.S. Illustrated. Brown, Son and Ferguson, Ltd. Glasgow, 1951. Price 30*s.* net.

In this book Commander Hewson has set himself the task of writing a history of the art of naviga tion, a feat which, as far as I have been able to discover, has never before been attempted i this country; a brief dissertation, however, by James Wilson did appear as a preface to Robertson' *Elements of Navigation* in the eighteenth century, and a book on very similar lines to that unde review was published in French by Capitaine F. Marguet in 1931.

The first part deals with the tools of the navigator's trade, the first chapter covering the histor of charts and sailing directions. In this chapter the author takes us from the Periplus of th ancient Greeks, through the Portolan charts and Rutters of the Middle Ages, the Dutch 'Waggoners' and seventeenth- and eighteenth-century English Pilots to the modern Admiralt charts and Sailing Directions, with side tracks to discuss the prime meridian and to explain plan and Mercator charts. It is of course by no means a complete history of charts and chartmaker but does provide an extremely good outline of the subject.

We are told that until the introduction of the compass in the Middle Ages navigation was onl coastal, though this is contradicted by the statement a few pages later that Hippalus (who live in the first century A.D.) was the first man to make use of the monsoons and to launch out acros the oceans. The story of the compass is taken up in the second chapter. Here, as in Part II Chap. III, which deals with the variation, Commander Hewson has suffered from the lack o a reliable previous writer to sift for him the wheat from the chaff. Every pitfall in the histor of that remarkable instrument has entangled his unwary feet, the Jesuits' assumption that th Chinese south-pointing chariot must have contained a compass, the gloss on Ara Frode's accoun of the discovery of Iceland, the great Brunetto Latini hoax, the absurd Adsiger blunder; all ar here and give an unreliability to these chapters which is much to be regretted, though it mus be admitted that the Commander has sinned in a very illustrious company. I was almost surprise to find that the Flavio Gioia myth had not been brought in, but can be gratified to note that th often neglected Dr Gowin Knight is given his rightful place. Yet even here the author has beer

caught by assuming that the statements on the compass in the 1830 edition of Falconer's *Marine Dictionary* apply to that year, whereas they have been copied from a far earlier edition without being brought up to date.

In Chap. III we are on surer ground and go on to navigational instruments; to be more precise, altitude instruments and globes. Here we are in the world of the astrolabe and cross-staff, the back-staff and Davis quadrant, Hadley's quadrant and the sextant. I was interested to see the sketch of Davis's back-staff, which preceded his quadrant and is often overlooked, but hoped in vain to learn how and when one instrument grew into the other. Perhaps no one knows. The pages dealing with the artificial horizon are of great interest and may be new to some who imagine that the bubble sextant had its origin in air navigation.

In Part II we go on to ocean navigation and navigational methods and in an introductory chapter read of the curious opposition of Tudor mariners to any suggestion that they should study the art, and of the gradual increase in knowledge by which Englishmen recovered the lead from other nations. Chap. II deals with the finding of the latitude by meridian altitudes, by double altitudes, by ex-meridian altitudes and by the Pole Star; the last named leading to a description of the nocturnal. In this connexion it is a surprise to observe that the illustration of the nocturnal shows it almost exactly upside down!

I have already made some comments on Chap. III which, after speculating on the early history of the knowledge of the variation, discusses the methods of finding the variation of the compass and the difficulty of doing so at sea. The omission of any reference to any types of prismatic azimuth instrument or alidade other than that of Sir William Thomson will be noted with surprise, since that instrument was by no means the first nor the last, and there are many national and merchant navies which do not use it. The attempted use of the variation as a means of finding the longitude is fully covered.

Next we have a chapter on the log line and log book. Some might think such a subject too small for a chapter but the author has much to tell us of the complications attendant on early estimates of the dimensions of the earth. Even the recording logs of our own day have a long history.

Chap. V deals with navigation by latitude and dead reckoning, the only method available to our ancestors, who had no knowledge of how to determine the longitude. Reference is made to the so-called oblique meridian whose existence appears to have been forgotten by writers on navigation until recent years. It was a clumsy expedient to get over the difficulties caused by differing values of the variation on opposite sides of the ocean but no doubt it served its turn, especially when surveying by compass was the rule. In this chapter we read more of the errors introduced by plane sailing. Oblique and great circle sailings are discussed and the chapter concludes with notes on the lead-line and more modern methods of sounding.

The final chapter brings us to the longitude, the finding of which was for long a Will o' the Wisp which avoided many earnest seekers. The various methods proposed, eclipses of the sun, the moon or Jupiter's satellites, variation of the compass, occultation of stars by the moon, lunars and finally chronometers, are all fully described, though in the last the account of Harrison's No. I timekeeper is slightly misleading, since at first glance it seems to imply that a pendulum was used. From longitude we pass naturally to the position lines of Sumner and St Hilaire and so reach the end of the story.

This book was well worth writing and fills a very definite gap in the literature of the sea. As I have indicated the treatment is not always perfect and not all the statements made can be accepted as truth, but the author has made an exceeding good and readable job. It is evident from the many references that much research has gone into its production but I would have preferred to see some indication when these references were second-hand.

There is an extremely clear and full index. W. E. M.

Transatlantic Paddle Steamers. By H. Philip Spratt. Brown, Son an Ferguson Ltd., Glasgow. Price 7*s.* 6*d.*

Although they are not at all a vociferous body there are a large number of students of nautic affairs whose main interest is the history of paddle steamers. The little volume under review w be a welcome addition to the somewhat meagre library on that subject.

The book is divided into three parts, the first of which gives an account of each vessel th crossed the Atlantic when the steam engine and its boiler were in a comparatively primitive stag Each of these vessels was really a sailing ship with auxiliary engines and for most of the time und way the engines were not used. Considering the efficiency of the sailing vessels of the day, says a great deal for the tenacity and dogged courage of the steam pioneers that they stuck t their ideas at all, as all who read this book will see.

One of the many difficulties was the constant loss of paddle-floats, and, again, when the sh lightened as the fuel was burnt, bigger floats had to be fitted. Then as the boilers were fed wit salt-water they had to be cleaned out every fourth day, a job which took about twenty-fou hours to do. But there was one advantage those simple boilers had; owing to the very low workin pressure of about 3 lb. the supply of feed-water was an easy business, merely a raised tank abov the boiler with no complicated feed pumps to bother about.

In 1837, however, the *Sirius* crossed the Atlantic under continuous steam power and this sh was able to do owing to the fact that Samuel Hall had, in 1834, patented the first practical surfac condenser, thus enabling fresh water to be fed to the boilers and doing away with the necessit of stopping the engines every few days to clean the boilers; this started the second stage.

In the next two or three years, several companies were formed to run a regular paddle steame service across the Atlantic but they all failed, probably because their running costs were so high largely owing to the fact that accommodation for passengers and cargo was very much limited b the amount of fuel they had to carry and the room taken up by the machinery spaces.

But in 1840 the third and last phase was begun; the *Britannia* was built for the British an North American Royal Mail Steam Packet Co., which later became known as the Cunar Steamship Co. Ltd., thus being the first ship built for the first successful trans-Atlantic steamshi company. In 1861 was built the *Scotia*, the last and finest paddle steamer of the Cunard lin In 1863 she crossed from New York to Queenstown in 8 days 3 hours, and held the Blue Riban of the Atlantic from 1862 until 1867. In 1875 she made her last voyage for the Cunard, s ending the reign of the paddle steamer; after that the screw propeller was supreme.

There are some interesting illustrations in this book, which is clearly printed and on quit good paper; a good index and an appendix of construction, dimension details, machinery an service add value to what is a very worth-while addition to the books on early steam navigation

H. O. H

Vols. 10–37 at 7*s.* 6*d.* each. Quarterly issues of Vol. 38 onwards 10*s.* 6*d.* each (postage 5*d.*). The index will be supplied free to purchasers of a complete volume or sold separately for 2*s.* each.

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